

The views of healthcare providers on providing a brief treatment to address methamphetamine use among patients with a dual diagnosis

Dr Lisa Dannatt

DNNLIS002

Submitted to the University of Cape Town

In fulfilment of the requirements of the degree

MPhil Addictions Mental Health

Faculty of Health Sciences

University of Cape Town

Submitted 20 January 2020

Supervisors: Prof Katherine Sorsdahl and Prof Dan Stein

Department of Psychiatry, University of Cape Town

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

DECLARATION

I, *Lisa Dannatt*, hereby declare that the work on which this dissertation/thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university.

I empower the university to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever.

Signature:

Signed by candidate

Date: 28 January 2020

CONTENTS

DECLARATION	2
CONTENTS	3
ABSTRACT	5
BACKGROUND:	5
METHODS:	5
RESULTS:	5
CONCLUSIONS:	5
ACKNOWLEDGEMENTS	6
CHAPTER 1: INTRODUCTION	7
Study Aims	10
Study Objectives	10
CHAPTER 2: LITERATURE REVIEW	11
Severe Mental Disorders	11
Dual Diagnosis	14
Methamphetamine and Its Use in South Africa	15
Treatment of Mental Disorders	16
Treatment of Methamphetamine Use Disorders	19
Treatment of Dual Diagnosis	22
CHAPTER 3: METHODS	25
Participants	25
Recruitment:	25
Procedure:	25
Data Analysis	25
Ethical Considerations	26
Informed Consent	26
Confidentiality and Data Management	26
CHAPTER 4: RESULTS	27

1.	Perceived Risk Factors for Methamphetamine Use	27
2. Perceived Impact of Methamphetamine Use.....		27
3. Available treatments for MA use and gaps in available services.....		30
Existing Treatments		30
Perceived Challenges to Existing Treatments.....		32
4. A Potential Screening and Brief Treatment for Methamphetamine Use among Patients with SMDs		
.....		35
Suggestions for a Potential Treatment		35
Management of Treatment Challenges		41
The Treatment Team and Task Sharing		42
CHAPTER 5: DISCUSSION.....		44
Need to Integrate Treatment for MA into Existing Services.....		44
Challenges to Existing Treatments.....		46
A Potential Integrated Treatment.....		48
Limitations		51
Implications.....		52
CHAPTER 6: CONCLUSIONS.....		53
Appendices.....		54
Appendix A.....		55
Appendix B		58
REFERENCES.....		59

ABSTRACT

BACKGROUND:

Methamphetamine (MA) use disorder in individuals with severe mental disorders (SMDs) has significant impact on clinical presentation and care. Although treatments exist, these are met by significant challenges. Notably, brief treatments for MA use within the general population have been feasible, acceptable and effective. An individualized, integrated treatment for MA use within a psychiatric inpatient setting would allow adjustment of the treatment according to individual patient needs. It is important to understand the patient needs and potential service barriers to care before formulating a treatment. This study begins to address this gap by seeking to understand the views of healthcare providers on a brief treatment to address MA use among patients with a dual diagnosis.

METHODS:

Thirteen key stakeholders working with patients with mental disorders including severe mental disorders and co morbid MA use were interviewed using an open-ended semi- structured interview schedule designed to explore their views on a brief treatment for MA use among patients with a dual diagnosis. Interviews were transcribed and the framework approach was used to conduct data analysis.

RESULTS:

Numerous themes emerged from the data. First, there are multiple risk factors for MA use. Second, this use has a significant impact on multiple aspects of patient presentation and care including individual impacts, family impacts, and impact on care. Third, although treatments for MA use disorders exist, these have significant challenges at multiple levels. Lastly, the integration of a modified brief treatment for MA use in patients with dual diagnosis would be possible if it was adjusted to patient-specific needs within the existing system and if the team adapting the treatment were cognizant of existing and potential challenges.

CONCLUSIONS:

The adaptation and integration of a brief treatment for MA use among patients with severe mental disorders was considered possible and even necessary if existing and potential challenges were carefully addressed.

ACKNOWLEDGEMENTS

I feel grateful for and humbled by all the support that I have received whilst completing this degree.

To my supervisors, Prof Katherine Sorsdahl and Prof Dan Stein; I am so privileged to have been able to work with both of you. Katherine, thank you for the countless hours, patience and wealth of knowledge that you have shown to me. I have grown as a researcher under your supervision. Dan, thank you for the support and time that you have given to me. I have learnt so much from you.

To my husband and daughter; Russell and Arwen, I am grateful for your love, support and sparkle. To my mom and dad; Winnie and Ken for their years of love and encouragement.

Lastly, thank you to the mental health professionals who agreed to participate in this study and to allow me to learn from this experience.

CHAPTER 1: INTRODUCTION

The prevalence of mental disorders is highly variable world wide with differing lifetime prevalence rates across various settings; from 12,0% in Nigeria to 47,4% in the United States (Kessler et al., 2007). More recently, a systematic review and meta- analysis from literature from 63 countries found that 17% of respondents worldwide reported a common mental disorder in the year preceding the assessment and 29% of respondents had been identified as having a common mental disorder at some point in their lifetime (Steel, 2014). Within the South African context, the South African Stress and Health Study (SASH) found that mental disorders are highly prevalent with a lifetime prevalence of 30% (Herman et al., 2009; Tomlinson et al., 2016); with the most prevalent disorders being anxiety disorders (15.8%), substance disorders (13.3%) and mood disorders (9.8%). Furthermore, alcohol abuse (11,4%) was the most prevalent individual disorder (Herman et al., 2009). Although this study did not focus on severe mental disorders, psychotic symptoms were reported by 12,7% of respondents (Temmingh, Stein, Seedat, & Williams, 2011). These symptoms led to significant functional impairment and need for the use of mental health services (Temmingh et al., 2011).

The most widely accepted definition of severe mental disorder (SMD) was proposed by The National Institute of Mental Health as a diagnosis of primary mental disorder of at least two years duration which results in significant impairment (Ruggeri, Leese, Thornicroft, Bisoffi, & Tansella, 2000). Few studies have focused specifically on the prevalence of SMDs. A systematic review of the prevalence of schizophrenia drawn from 46 countries including South Africa, found the lifetime prevalence of schizophrenia to be 4,0 per 1000 (Saha, Chant, Welham, & McGrath, 2005), which is contrary to the 1% frequently quoted in the literature. SMDs result in significant impacts to mental health treatment services due to their prolonged duration and functional impairment. (Drake et al., 2001). Further, to complicate matters it is common for individuals with a SMD to also have a co-morbid substance use disorder; this comorbidity is often referred to as dual diagnosis (Drake et al., 2001).

The definition of substance use disorder has varied from DSM IV TR to the more recent DSM 5. DSM IV TR previously divided substance use disorder into abuse and dependence; as will be seen in literature pre DSM 5 (Hasin et al., 2013). DSM 5 shifted the definition of substance use disorder by combining abuse and dependence into a single entity, adding cravings as a criterion, dropping legal problems as a criterion and adding gambling disorder to the chapter “substance use and addictive disorders” (Hasin et

al., 2013). Thus, the DSM 5 definition of a substance use disorder is the persistent use of psychoactive substances despite adverse consequences (Association, 2013). This is characterized by symptoms of impaired control, social impairment, risky use and pharmacological properties including tolerance and withdrawal (Association, 2013).

The prevalence of dual diagnosis varies across studies and populations. Johnson proposed that rates of dual diagnosis vary among patients with psychotic illness between 20% and 65%, with rates of 30% to 50% among outpatients in the US. (Johnson, 1997). The European Schizophrenia cohort study investigated the rates of dual diagnosis among patients with schizophrenia in 9 centers across Europe and found that while France (19%) and Germany (21%) had low lifetime prevalence rates of dual diagnosis; the UK had a higher prevalence of 35% (Carra et al., 2012).

People with an SMD use the same substances as the general population (Drake et al., 2001). In the Western Cape, clients accessing care for substance use most commonly report use of alcohol, cannabis and MA with MA among the top two primary drugs used (Babor, Del Boca, & Bray, 2017). Therefore, individuals with a SMD in the Western Cape would be most likely to use MA, alcohol and cannabis due to their wide availability.

A study completed at Stikland Hospital in the Western Cape, South Africa, found that half of patients presenting to acute mental health services over a three month period presented with co-morbid substance use (Weich & Pienaar, 2009). The most common substances used prior to admission were MA (13%), alcohol (23%) and cannabis (27%) (Weich & Pienaar, 2009). A multi-site South African study conducted in the Western Cape found that patients reporting MA use presenting with a variety of mental disorders including bipolar disorder (12%), schizophrenia (31%) and substance induced disorders (41%) (A Plüddemann et al., 2013). MA use is associated with multiple psychiatric symptoms including anxiety, mania, psychosis, aggression and cognitive impairment (Rawson, Gonzales, & Brethen, 2002); (A Plüddemann et al., 2013). Substance use, including MA use also contributes to medication non-adherence, recurrence of symptoms and readmission (Botha et al., 2010).

At the present time there are no definitive, manualized treatments for management of substance use disorders among patients with dual diagnosis. Treatments that have been investigated vary in treatment approach and have employed a variety of techniques including psychoeducation, motivational

interviewing and a variety of cognitive behavioral interventions (Drake, O'Neal, & Wallach, 2008). These studies have been conducted in higher income countries. For example, a randomized control trial conducted in New South Wales, Australia compared a combined cognitive behavioral therapy and motivational interviewing brief treatment to treatment as usual for participants with a dual diagnosis who were using alcohol, amphetamine and cannabis (Baker et al., 2006). These participants were patients with non- acute symptoms receiving care as outpatients (Baker et al., 2006). Short term , the treatment demonstrated efficacy in decreasing psychiatric symptoms and substance use (Baker et al., 2006). Long term, amphetamine users who received the treatment showed some stability of decreased use, whereas other long term effects were unremarkable (Baker et al., 2006).

Screening, brief intervention, and referral to treatment (SBIRT) is an integrated, evidence-based treatment tool that aims to identify and reduce problematic substance use early (McCance-Katz, 2012). SBIRT can be delivered in a wide variety of settings (McCance-Katz, 2012). Screening aims to rapidly assess the severity of substance use and indicate the best level of treatment (McCance-Katz, 2012). Brief intervention is aimed at developing insight into substance use and to develop motivation to change (McCance-Katz, 2012). Referral to treatment is provides more extensive care for individuals screened with more severe substance use (McCance-Katz, 2012). Brief treatments exist along the SBIRT continuum as an intermediary between brief intervention and referral to treatment (Babor, 2017). Brief treatment is aimed at patients with higher severity of substance use and may requires more resources (Babor, 2017). Typically, brief treatment takes the form of a structured intervention comprising of five to twelve individual sessions drawing from motivational and cognitive- behavioral treatment modalities (Babor, 2017). Within the Western Cape, several SBIRT programs have been implemented with success in a variety of settings including district hospitals (Sorsdahl, 2012); antenatal clinics (Sorsdahl, 2015); emergency centers (Sorsdahl, 2015) and primary care (Myers, 2019). However, significantly, none of these studies focused on SMDs and this is an immense gap that requires careful attention.

A treatment targeted at patients with dual diagnosis who use MA is needed. However, as part of the process to identify and adapt an treatment, obtaining insights from key stakeholders is essential (Craig et al., 2008).

This study begins to address this gap by exploring the views of key stakeholders regarding a potential treatment for MA use among patients with SMDs.

Study Aims

To explore the views of key stakeholders on MA use amongst individuals with dual diagnosis, the current available treatments and views of a potential brief treatment to address MA use among patients with a dual diagnosis admitted to Valkenberg Hospital.

Study Objectives

- 1) To explore the perceptions of MA use and dual diagnosis among key stakeholders
- 2) To explore available treatments of MA and gaps in available services
- 3) To explore stakeholders beliefs regarding brief treatments for MA use and suggestions for developing a potential brief treatment to the needs of potential participants with dual diagnosis

CHAPTER 2: LITERATURE REVIEW

This section will begin by providing an overview of SMDs with a focus on dual diagnosis. It will then describe MA and its use in South Africa. Evidence based treatments for MA use disorders and dual diagnoses are then described in detail.

Severe Mental Disorders

The National Institute of Mental Health defines SMDs as a diagnosis of primary mental disorder causes significant functional impairment and require at least two years of treatment (Ruggeri et al., 2000). Usually this includes illnesses such as schizophrenia, schizoaffective disorder, bipolar disorder and major depressive disorder. However, definitions vary in multiple ways with regards to the inclusion or exclusion of personality disorders, duration of illness and measurement of disability (Ruggeri et al., 2000): This variation in definition of severe mental disorder leads to difficulty in estimation of prevalence rates of severe mental disorders; which will in turn impact on planning of service provision. (Ruggeri et al., 2000).

Mental disorders are highly prevalent worldwide with differing lifetime prevalence rates across various settings; from 12,0% in Nigeria to 47,4% in the United States (Kessler et al., 2007). More recently, a systematic review and meta- analysis from literature from 63 countries found that 17% of respondents worldwide reported a common mental disorder in the year preceding the assessment and 29% of respondents had been identified as having a common mental disorder at some point in their lifetime (Steel, 2014). Mental disorders are highly prevalent in South Africa with a lifetime prevalence for common mental disorders of 30% according to the South African Stress and Health (SASH) Study (Herman et al., 2009; Tomlinson et al., 2016). Although the SASH study did not focus on SMDs, one arm of the study evaluated the prevalence of psychotic symptoms at 12,7% (Temmingh et al., 2011). These symptoms were associated with increased functional impairment and increased use of mental health services (Temmingh et al., 2011).

However, few studies have reported on the prevalence of SMDs. A systematic review of the prevalence of schizophrenia drawn from 46 countries including South Africa, found the lifetime prevalence of schizophrenia to be 4,0 per 1000, which is contrary to the 1% frequently quoted in the literature (Saha et al., 2005). The prevalence of bipolar disorder is estimated at 1% (Grande, Berk, Birmaher, & Vieta, 2016) and it is considered as among the top twenty leading causes of disability worldwide (Ferrari et al.,

2016). A study conducted in South London examined the co morbidity of alcohol and other drugs among people with psychotic disorders and found that the one year prevalence rate for all substances was 36% with 31% for alcohol and 15% for other drugs (Menezes et al., 1996),

In spite of this difficulty estimating the prevalence of SMDs, SMDs place a large burden on society worldwide (Drake et al., 2001). It is estimated mental disorders including depression, substance use, dementia, bipolar disorder and schizophrenia contribute to 13% of the global burden of disease (Collins et al., 2011). Mortality and morbidity rates among individuals with SMDs are high with mortality occurring 10 to 20 years sooner than among the general population (Liu et al., 2017). This increase in mortality rates can be due to natural and unnatural causes (Liu et al., 2017). Natural causes include preventable physical diseases such as cardiovascular disease, respiratory disease, diabetes mellitus, cancers and infections (Liu et al., 2017). Unnatural causes include suicide, homicide and accidents (Liu et al., 2017).

There are multiple negative implications of living with an SMD. These implications include lower education attainment; unemployment and reliance on social grants; homelessness; incarceration; stigma and caregiver burden (Insel, 2008). Mental illness leads to poorer school performance and higher rates of school dropout (Freudenberg & Ruglis, 2007). Lower levels of education in turn lead to an increase in health risk behaviors such as smoking and other substance use (Freudenberg & Ruglis, 2007). School dropout has been associated with worsening mental and physical health, lower attained education and higher levels of unemployment and reliance on social grants (Freudenberg & Ruglis, 2007). Unemployment is a consequence of both mental disorders and incomplete education (Collins et al., 2011), (Freudenberg & Ruglis, 2007). Typically more than 85% of people living with SMI are unemployed (Goldberg et al., 2001). Early illness onset, worsening illness severity and recurrent admissions impact negatively on employment rates (Goldberg et al., 2001). Vocational programs have been formulated to mitigate unemployment but these may be inaccessible or under-utilized (Goldberg et al., 2001). A qualitative study from Boston University examined the impact of employment among people living with SMI and found that employment provides meaning, promotes self-esteem, assists with management of symptoms and provides financial means (Dunn, Wewiorski, & Rogers, 2008). Conversely, unemployment can be seen to do the opposite: worsening self-esteem and coping mechanisms and leading to significant financial impacts. Further sequelae of SMD include criminal activity and homelessness (Draine, Salzer, Culhane, & Hadley, 2002). Risk factors for incarceration

include lower levels of education, substance use, unemployment and lack of financial means (Draine et al., 2002). These have already been discussed as sequelae of SMD; this leads to a high number of people with SMI within prison populations where they may be victims of assault and violence (Draine et al., 2002). Incarceration in turn can also lead to worsening stigma and impact negatively on the aforementioned consequences of SMD. Homelessness can be a consequence or a cause of mental illness (Perry & Craig, 2015). Rates of homelessness vary among social settings (Draine et al., 2002). There are increased prevalence rates of SMI, personality disorders, suicide and self-harm among the homeless (Perry & Craig, 2015). A systematic review of mental illness among the homeless living in Higher Income Countries found significant rates of mental illness including alcohol use disorders (8,1-58,5%), other substance use disorders (4,5-54,2%) and psychotic disorders (2,8-42,3%) (Fazel, Khosla, Doll, & Geddes, 2008). There is limited data for prevalence rates of homelessness in LMIC. In LMIC homelessness has been a consequence of de-institutionalization and decentralization of mental health services leading to neglect (Saraceno et al., 2007). Homelessness itself leads to increased morbidity and mortality rates and higher utilization of services (Hwang, 2001).

Stigma of living with a mental illness is an additional burden faced by those living with an SMI (Gaebel, Zäske, & Baumann, 2006). Stigma is impacted by both the perceptions of the public and the perceptions of people living with SMI (Gaebel et al., 2006). It has the ability to worsen mental illness by reducing quality of life, limiting social interactions, limiting opportunities and reducing self-esteem (Gaebel et al., 2006). It also impacts help-seeking behavior regarding health care through system barriers and personal barriers (Corrigan, Druss, & Perlick, 2014). System barriers include negative attitudes from health care staff, financial barrier which impact access to care and workforce barriers which impact employment (Corrigan et al., 2014). Personal barriers are attitudes that affect treatment seeking behavior and include poor recognition of early symptoms, treatment avoidance, treatment dropout and lack of an appropriate support structure (Corrigan et al., 2014).

Caregiver burden is another consequence of SMI as people living with SMI may require long term care and the family take responsibility for this (Mulud & McCarthy, 2017). Provision of long term care can affect caregivers mentally and physically (Mulud & McCarthy, 2017). Burden is impacted by multiple factors such as family understanding of the illness, other socioeconomic burdens and illness severity (Saunders, 2003). Burden can be objective or subjective. Objective burden is defined as the negative effects of the mental illness on the family plus the stress of caring for an individual with an SMD

(Baronet, 1999). Subjective burden is the subjective feelings and thoughts held by the caregiver about caring for a person with SMI (Baronet, 1999). Mechanisms to alleviate burden include supportive social support networks (Saunders, 2003)

Further, to complicate matters, one of the most common comorbidities for individuals with SMDs is substance use disorders. This is referred to as a dual diagnosis (Drake et al., 2001).

Dual Diagnosis

Dual diagnosis is defined as the co-occurrence of a SMD with a substance use disorder (Mueser, Drake, & Wallach, 1998). There are four proposed etiologies of dual diagnosis (Mueser et al., 1998). First, substance use can result in a mental disorder in an individual who would have remained well in the absence of substance use (Mueser et al., 1998). Second, the presence of an SMD increases the risk of substance use for multiple reasons including management of symptoms, side effects or stigma (Mueser et al., 1998). Third, the SMDs and substance use disorders may share risk factors such as genetic risk factors (Mueser et al., 1998). Lastly each disorder can precipitate the other (Mueser et al., 1998).

Dual diagnosis compounds medical, psychological and social challenges discussed previously which leads to worsening prognosis and further treatment complexities. Medical challenges include increased severity of symptoms including aggression and suicidality; increased high risk behaviors which may lead to infections including HIV and treatment non-compliance leading to multiple relapses and readmissions (Miles et al., 2003; Mueser et al., 1998). Psychosocial challenges faced include impacts to the individual, their family and community such as loss of employment, homelessness, legal difficulties, family emotional and financial distress and increased caregiver burden (Miles et al., 2003; Mueser et al., 1998).

The prevalence of dual diagnosis varies worldwide with current rates of 12-64% and lifetime prevalence rates of 12-65% (Weich & Pienaar, 2009). Although epidemiological data in South Africa is limited, a study conducted at Stikland Hospital in 2008 estimated that half of participants admitted to the acute psychiatric services over a 3-month period with SMDs presented with a dual diagnosis. A second South African study conducted at 6 hospitals in Cape Town, Western Cape found that patients admitted with MA use disorder presented with comorbid substance induced psychosis (41%), schizophrenia (31%) and bipolar disorder (12%) (A Plüddemann et al., 2013). Typically, individuals with SMDs used the same

substances as individuals in the general population (Drake et al., 2001). Within the Western Cape alcohol, cannabis and MA are the most common substances used (J. E. Siphokazi Dada, Nadine Harker Burnhams,, Charles Parry, & Kitshoff, 2015). Recent data suggests that in South Africa, specifically the Western Cape, the prevalence of SMDs may be increasing due to the MA epidemic.

Methamphetamine and Its Use in South Africa

According to The World Drug Report of 2019, approximately 5,5% of the world's population have used drugs at least once (UNODC, 2019). Stimulants, including MA, are among the most common drugs used worldwide (UNODC, 2019). The type of stimulants used vary according to country and it has been reported that MA use is increasing in several countries (UNODC, 2019).

In South Africa, MA use emerged post- Apartheid due to a confluence of social, economic and political influences (Watt et al., 2014). MA is now widely available within the Western Cape and poses significant burden to both mental health and substance use treatment systems (Pasche & Myers, 2012). According to the South African Community Epidemiology Network on Drug Use (SACENDU) Brief of 2019, admissions to treatment facilities for MA use is high within the Western Cape with 28% of patients admitted to rehabilitation centers reporting MA as their primary substance (N. H. B. Siphokazi Dada, Jodilee Erasmus, Warren Lucas, Charles Parry, Arvin Bhana, Sandra Pretorius, Roger Weimann, TB HIV Care, Anova Health Institute, OUT Wellbeing & the University of Pretoria, 2019). Most MA users report smoking it as opposed to injecting (N. H. B. Siphokazi Dada, Jodilee Erasmus, Warren Lucas, Charles Parry, Arvin Bhana, Sandra Pretorius, Roger Weimann, TB HIV Care, Anova Health Institute, OUT Wellbeing & the University of Pretoria, 2019). MA uses poses a significant burden to treatment centers; a South African study published in 2009 examined the SACENDU surveillance data and found a dramatic increase in treatment admissions from 2004 to 2006 (Andreas Plüddemann, Plüddemann, Myers, & Parry, 2008).

Several South African studies conducted in adolescents have discussed impacts of MA. First, MA use in high school students was associated with aggressive behavior, other substance use especially tobacco and alcohol, and depression (A. Plüddemann, A. J. Flisher, R. McKetin, C. Parry, & C. Lombard, 2010). Another study completed with high school students in the Western Cape found that students using MA reported more school absenteeism than their non-substance using classmates (A. Plüddemann, A. J. Flisher, R. McKetin, C. D. Parry, & C. J. Lombard, 2010). Lastly, a third study conducted among high school students in Cape Town, South Africa found that MA use was associated with risky sexual behavior

which adds to concern regarding HIV transmission rates among adolescents (Andreas Plüddemann, Flisher, McKetin, Parry, & Lombard, 2012)

Multiple psychiatric symptoms and syndromes have been associated with MA use; including psychotic symptoms, mood symptoms, anxiety symptoms, neurovegetative shift, increased aggression and cognitive impairment (Rawson et al., 2002), (A Plüddemann et al., 2013). A South African study examined one hundred MA users and found high rates of psychiatric comorbidity (36%) including mood disorders (16%), psychotic disorders (13%) and anxiety disorders (13%) with 25% of these disorder being substance induced (Akindipe, Wilson, & Stein, 2014). Symptoms of MA psychosis include delusions, auditory hallucinations and increases in aggression and impulsivity (Maxwell, 2005). MA use disorder leads to Cognitive impairments including attention and concentration, memory deficits and executive function; which carry negative effects for treatments for MA use (Barr et al., 2006a) (Potvin et al., 2018).

It may be difficult to differentiate between MA induced psychosis and a primary psychotic disorder with comorbid MA use as symptoms are similar (Glasner-Edwards & Mooney, 2014). Several risk factors are associated with the development of a MA induced psychosis including dose, duration and route of use in addition to underlying personal risk factors (Fasihpour, Molavi, & Shariat, 2013). Differentiating between a MA induced psychosis and existing primary psychotic or bipolar disorder is not determined by symptomatology (Fasihpour et al., 2013) but rather requires a clear historical timeline and possible toxicology (Glasner-Edwards & Mooney, 2014).

Treatment of Mental Disorders

Given the high prevalence and significant impact of mental disorders worldwide, the World Health Organization proposes a model describing a variety of mental health services which emphasizes multiple levels of collaborative care. (WHO 2009).

The model recommends that countries use this a framework to guide how they structure how they configure their mental health services to include self-care; informal community services; primary care based mental health services; general hospital based mental health services and limited dedicated psychiatric hospitals (see figure 1) (WHO 2009). Lower tier services should be widely utilized but at lower costs; and higher tier specialist services, although costly, should be used by a much smaller percentage of individuals (WHO 2009).

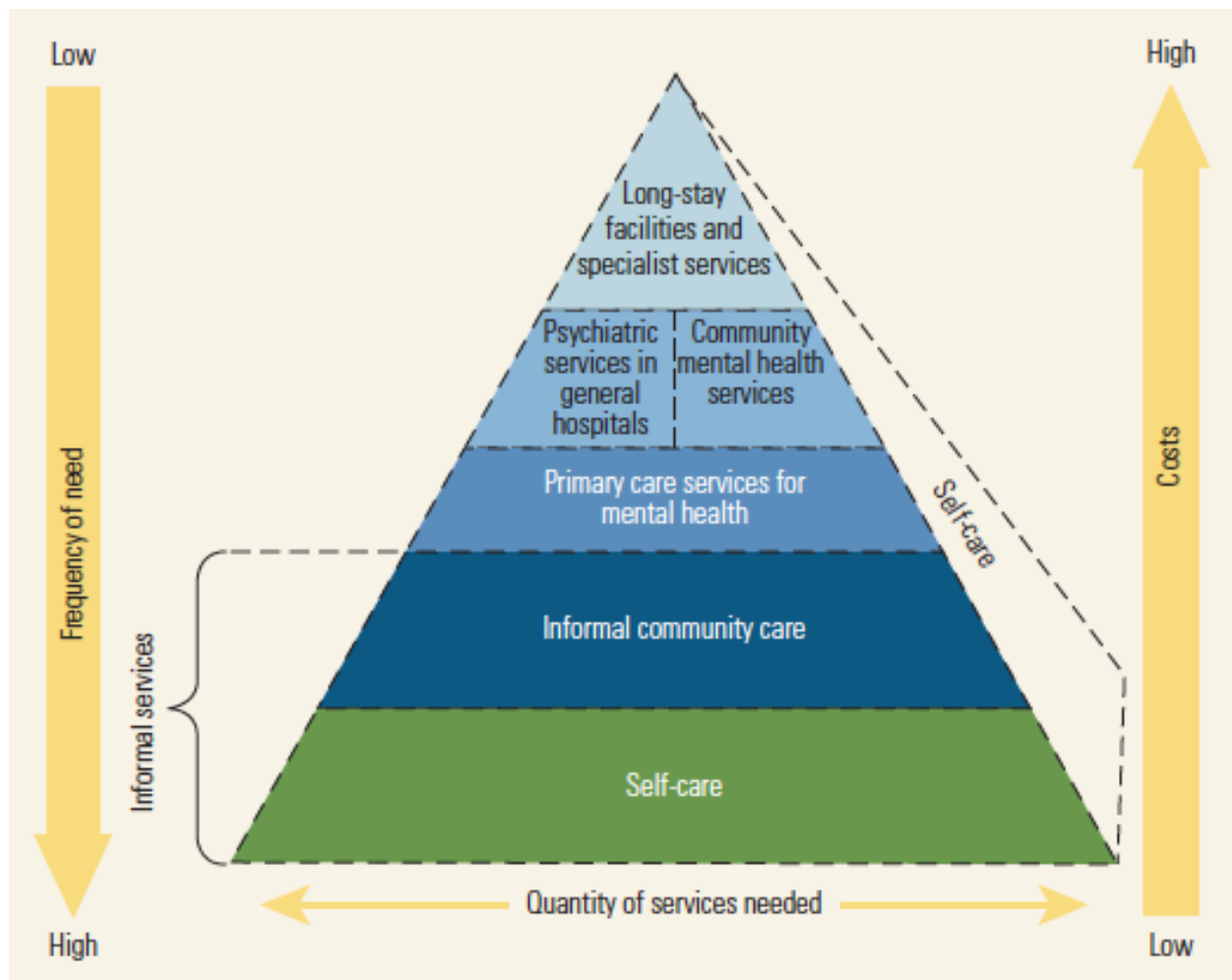


Figure 1: World Health Organization Service Organization Pyramid for an Optimal Mix of Services for Mental Health

South Africa is a middle income country with high rates of poverty, unemployment and socio economic inequalities (Burns, 2011). It is also challenged by high levels of crime and violence, is the epicenter of the HIV pandemic and has high levels of substance use (Burns, 2011). All these factors influence mental health and the development of mental disorders (Burns, 2011).

Within South Africa, health services are divided into private and public, with the public health sector serving the majority of the population (Docrat, Besada, Cleary, Daviaud, & Lund, 2019). Therefore, provision of mental health services has been met with multiple barriers including lack of resources (Jack

et al., 2014). Furthermore, existing resources are concentrated in tertiary settings with fewer resources in primary and community care levels (Jack et al., 2014).

Primary health care is responsible for early identification and management of mental disorders, maintenance of well individuals living with chronic mental disorders and appropriate referral to higher levels of care as needed plus health prevention and health promotion activities (WHO 2009). These allow for affordable, accessible and acceptable treatment of common mental disorders to be integrated with care for stable physical conditions (WHO, 2009). Within LMIC such primary health care systems may vary in quality and reach (Alem, Jacobsson, & Hanlon, 2008). In South Africa, several challenges have been posed to the integration of mental health services into primary care including paucity of financial and human resources (Tomlinson et al., 2016). Integrating care into primary care level in South Africa requires strengthening the system including staff training and support, improving availability of resources such as medication and availability of psychosocial treatments (Thornicroft et al., 2018).

Community mental health services include a multitude of services such as group homes, family assistance, home based care practitioners, mobile clinics, residential homes, rehabilitation services and day centers (WHO, 2009). These services are essential to prevent hospital admission, support deinstitutionalization and improve treatment outcomes (WHO, 2009). Within LMIC this service could possibly be provided by linking traditional healers, families and religious organizations with primary health services (Alem et al., 2008). Within South Africa, a study conducted in Kwazulu-Natal revealed that although most patients held traditional, cultural beliefs around mental disorders; there were several attitudinal barriers to collaboration between traditional healers and westernized health care providers (Campbell-Hall et al., 2010). These would need to be addressed to allow for better community level service collaboration (Campbell-Hall et al., 2010).

Within general hospital settings, the integration of mental health care is essential because hospital admissions may be required for people with mental disorders (WHO, 2009). District hospitals are usually accessible and acceptable for treatment of both physical and mental disorders (WHO, 2009). These facilities can refer people with mental disorders who require higher levels of care to tertiary services (WHO, 2009). Within African countries, most mental health practitioners are within urban settings including tertiary hospitals, with fewer practitioners located in rural and district settings (Alem et al., 2008). Services may also be concentrated within the private sector instead of the public sector (Alem et

al., 2008). Within South Africa, general hospitals are utilized for the involuntary admission of patients for 72 hour assessment under the Mental Health Care Act (Petersen & Lund, 2011). Some of the challenges faced within these district hospitals are a lack of specialist infrastructure and staffing (Petersen & Lund, 2011).

Specialist psychiatric care should be required to manage a minority of people with mental disorders who present with complex disorders or require a longer duration of treatment (WHO, 2009). Improving the level of care available at district hospitals is one mechanism for decreasing the need for these services (WHO 2009). However, the majority of mental health resources are concentrated at tertiary level within South Africa (Jack et al., 2014). Policy shifts towards deinstitutionalized care has led to a decrease number in tertiary inpatient beds and early discharges of patients to compensate for this (Petersen & Lund, 2011). This has led to the development of high frequency users due to early discharges, treatment non-compliance and substance use (Petersen & Lund, 2011).

Treatment of Methamphetamine Use Disorders

The World Health Organization Mental Health Gap guidelines for the management of substance use disorders recommend the use of a valid screening tool to screen for substance use disorders (Dua et al., 2011). Patients with mild and moderate substance use disorders should receive a brief intervention (Akindipe et al., 2014). Patients with moderate to severe use should be referred to definitive substance treatment services which may be either outpatient, intensive outpatient or inpatient (Dua et al., 2011). Screening tools and treatment modalities may depend on which substances are used (Dua et al., 2011).

Screening, brief intervention, and referral to treatment (SBIRT) is an integrated, evidence-based treatment tool that aims to identify and reduce problematic substance use early (McCance-Katz, 2012). SBIRT can be delivered in a wide variety of settings (McCance-Katz, 2012). Screening aims to rapidly assess the severity of substance use and indicate the best level of treatment (McCance-Katz, 2012). Brief intervention is aimed at developing insight into substance use and to develop motivation to change (McCance-Katz, 2012). Referral to treatment provides more extensive care for individuals screened with more severe substance use (McCance-Katz, 2012). Within the Western Cape, several SBIRT programs have been implemented with success in a variety of settings including district hospitals (Sorsdahl, 2012); antenatal clinics (Sorsdahl, 2015); emergency centers (Sorsdahl, 2015) and primary care (Myers, 2019). However, significantly, none of these studies focused on SMDs and this is an immense gap that requires careful attention. Brief treatments exist along the SBIRT continuum as an

intermediary between brief intervention and referral to treatment (Babor, 2017). Brief treatment is aimed at patients with higher severity of substance use and may require more resources (Babor, 2017). Typically, brief treatment takes the form of a structured intervention comprising of five to twelve individual sessions drawing from motivational and cognitive-behavioral treatment modalities (Babor, 2017).

Psychosocial treatments are the preferred mode of treatment of MA use as pharmacological treatment of MA use disorders have been shown to have limited effectiveness (Lee, Lee, Rawson, Lee, & Rawson, 2008). Multiple psychosocial treatments exist for the management of MA use disorders (J. Shearer, 2007), including cue exposure, contingency management (J. Shearer, 2007), the 12 step programs, motivational interviewing techniques and cognitive behavioral treatments (J. Shearer, 2007). However engagement in psychosocial treatment is challenging, due to low rates of treatment seeking and retention (Courtney & Ray, 2014). The latter three psychosocial treatments will be described in more detail given their relevance to the proposed study.

Self-help treatments such as Alcoholics Anonymous are part of the widely available twelve step programs for substance use disorders (Donovan & Wells, 2007). The twelve step approach conceptualizes addiction as a pervasive disease, developing self-awareness and whilst assisting others in their recovery (Donovan, Ingalsbe, Benbow, & Daley, 2013). Twelve step programs are usually utilized as a form of treatment maintenance following other evidence-based treatments for MA use (J. Shearer, 2007). Usually, substance using individuals engage with twelve step programs during the initial phases of treatment or for post-treatment support (Donovan & Wells, 2007).

Motivational interviewing is a client-centered, directive therapeutic approach which explores and resolves ambivalence in an attempt to modify substance using behavior (Hettima, Steele, & Miller, 2005). Motivational interviewing is effective in supporting treatment retention during the early phases (Carroll et al., 2006).

Cognitive behavioral therapy (CBT) has been adapted for the management of a wide variety of mental disorders including substance use disorders (J. Shearer, 2007). Within this model substance use is viewed as a maladaptive behavior due to underlying irrational beliefs about the self, others and the environment (McHugh, Hearon, & Otto, 2010; J. Shearer, 2007). Multiple different approaches exist and

include a functional analysis of underlying thoughts and emotions related to substance use; identification of triggers, thought stopping techniques and relapse prevention skills (McHugh et al., 2010). CBT has been shown to be effective in reducing substance use including stimulant use (J. Shearer, 2007). An Australian study compared a CBT- based brief treatment to abstinence based treatment found that the CBT treatment was superior (Baker, Kay-Lambkin, Lee, Claire, & Jenner, 2003). A South African randomized control trial demonstrated that a problem solving treatment was effective to decrease substance use (K Sorsdahl, DJ Stein, et al., 2015).

Relapse prevention is a cognitive behavioral technique that aims to teach effective management of high risk situations through use of behavioral skills training and cognitive methods (Marlatt & George, 1984); and therefore prevent relapse (J. Shearer, 2007). Relapse prevention has been adapted for a variety of trails and has been found effective in managing MA use (Kobayashi et al., 2007); (Matsumoto et al., 2014); (Tanibuchi et al., 2016)

Contingency management is a behavioral treatment where incentives are provided for cessation of substance use or other behaviors directed at recovery (James Shearer, 2007). It is considered effective for the management of MA use (Roll, 2007) and has demonstrated superiority over treatment as usual in promoting abstinence both short term, whilst receiving incentives; and long term post contingency management treatments (Roll et al., 2006). A South African study found that contingency management was effective in reducing MA use among MA users living in Cape Town (Okafor et al., 2019).

The Matrix Model is an outpatient- based substance treatment approach that has been assessed for management of stimulant use including MA (Magidson et al., 2017). It is rooted in cognitive behavioral approaches and draws on a variety of techniques to promote and maintain abstinence, and to educate and support individuals and their families (Rawson et al., 2002). Limited data exists regarding implementation among MA users with comorbid psychosis (Barr et al., 2006a). Within the Western Cape, the City of Cape Town implemented Matrix Model outpatient treatment services at primary health care clinics to offer affordable, accessible and evidenced-based services to people with methamphetamine use disorder (Gouse et al., 2016). However, one study revealed that there are still treatment barriers as only 13% of people who initiate treatment, complete the entire 16 week program (Gouse et al., 2016).

Treatment of MA use poses several challenges (Meade et al., 2015). MA users' experiences and perceptions of treatment influence treatment engagement as shown by a Western Cape study (Meade et al., 2015). First, although most users had not attended treatment, they held negative perceptions of treatment facilities as punitive, hostile, and ineffective (Meade et al., 2015). Second Most of these participants expressed motivation to quit (Meade et al., 2015). Lastly, most users stated that the social environment where methamphetamine is highly accessible and use is normalized was the biggest barrier to quitting (Meade et al., 2015). A second study conducted in Cape Town examined structural barriers for treatment of substance use disorders in previously disadvantaged communities and found fragmented service delivery; poor capacity and other infrastructural concerns; and limited resource allocation to treatments which limits affordable and accessible services (Bronwyn Myers, Louw, & Fakier, 2008). A third study conducted in Cape Town examined gender differences in barriers to substance treatment and found that women experienced more barriers to treatment including awareness of treatment options; accessibility and affordability of these treatments which led to negative impacts on treatment (B Myers, Louw, & Pasche, 2011). A fourth study from Cape Town examined barriers to treatment among black and colored South Africans and found that these populations had less awareness of available treatment options and decreased accessibility to treatment (Bronwyn Myers, 2013). These barriers were even more pronounced among the black South African population (Bronwyn Myers, 2013).

Treatment of Dual Diagnosis

Comprehensive treatment of dual diagnosis requires the treatment of both SMD and substance use disorder (Drake et al., 2008). Traditionally mental disorders are treated with a combination of pharmacological and psychosocial treatments. For severe mental disorders this treatment usually occurs in an inpatient setting and is delivered by mental health professionals including psychiatrists (Drake et al., 2001). In the South African context, the burden of treatment of SMDs falls on mental health services within government hospitals. The treatment of substance use disorders is usually delivered by drug treatment centers or self-help groups such as alcoholics anonymous which rely heavily on twelve step approaches (H. T. B. Myers, 2012). In South Africa, this is coordinated by the Department of Social Development (H. T. B. Myers, 2012).

Integrated treatment for dual diagnosis encompasses simultaneous treatment of both disorders by one team with the prerequisite skills for managing both disorders (Drake et al., 2001). This treatment facilitates improved patient outcomes (Drake et al 2001). Integration of treatment promotes treatment

accessibility of services (Murthy & Chand, 2012). A large, multi-site Methamphetamine Treatment Project in conducted in parts of the United States examined co- occurring psychiatric symptoms among 1061 MA users and found high rates of comorbidity (Zweben et al., 2004). In this study setting, community-based programs were aimed at substance use management only and were therefore ill-equipped to managed comorbid mental disorders (Zweben et al., 2004). Conversely, mental health treatment programs focused mostly on care of mental disorders and not management for substance use (Zweben et al., 2004). These findings support the integration of treatment for this population (Zweben et al., 2004).

Management of dual diagnosis is met with multiple challenges. First, treatments are usually offered by two separate systems; and integrated services, if they exist, are costly. (Drake et al., 2001). Second, substance use treatment programs may not be equipped to manage individuals with comorbid mental disorders. (Mueser et al., 1998). Conversely, mental health treatment teams may not possess the skills required for management of substance use disorders. (Drake et al., 2001). This results in service fragmentation and delivery of incomplete care (McGovern, Lambert-Harris, Gotham, Claus, & Xie, 2014)Third, illness related factors may impact on individual participation in existing substance use treatment programs (Drake et al., 2001). These factors include a variety of mental disorder symptoms such as positive psychotic symptoms (Morris, Griffiths, Le Pelley, & Weickert, 2013); negative psychotic symptoms (Blanchard & Cohen, 2006); mood symptoms and cognitive impairment (Harvey et al, 2005).

There are no definitive, manualized psychosocial treatments for treatment of substance use disorders among patients with dual diagnosis. At present, a variety of treatments have been used and include psychoeducation, motivational interviewing and cognitive behavioral techniques utilized in individual or group settings (Drake et al., 2008)

A few studies have been conducted in higher income countries. For example, a randomized control trial conducted in New South Wales, Australia compared a brief blended motivational interviewing and cognitive behavioral treatment to treatment as usual for participants with a dual diagnosis who were using alcohol, cannabis and amphetamine (Baker et al., 2006). These participants were patients with non- acute symptoms treated as outpatients in the community. (Baker et al., 2006). Short term , the treatment demonstrated efficacy in decreasing psychiatric symptoms and substance use (Baker et al.,

2006). Long term, amphetamine users who received the blended treatment showed some stability of decreased use, whereas other long term effects were unremarkable (Baker et al., 2006).

Given the prevalence of MA use within the Western Cape and the impact that MA has for individuals, their families and on treatment approaches and systems; there is a potential need for an integrated treatment. Prior to developing and testing a brief treatment, formative work is required in order to increase its acceptability and feasibility (Craig et al., 2008). Therefore, our study aims to assess the views of healthcare providers and potential participants on a possible brief treatment for MA use among patients with a dual diagnosis. This could be an important first step in the development of an acceptable, feasible and effective treatment for MA users with a dual diagnosis within the South African context.

CHAPTER 3: METHODS

Participants

Thirteen healthcare providers working with patients with dual diagnosis were interviewed. They included psychiatrists, psychologists, social workers, and occupational therapists from a variety of institutions that included both district and tertiary settings working with both adolescent and adult patient populations. Most participants were psychiatrists (N=5), followed by occupational therapists (N=3), social workers (N=3) and clinical psychologists (N=2).

Recruitment:

Stakeholders were recruited from tertiary and district psychiatric inpatient treatment settings within the Western Cape. Fifteen stakeholders were approached to participate in this study, however two were unable to participate. Thirteen stakeholders agreed to participate, and saturation was reached at 10 participants. Stakeholders included healthcare providers presently providing care for patients with a dual diagnosis and MA use, key management at psychiatric facilities and substance use specialists.

Procedure:

Participants were contacted via email to determine willingness to participate in this study. The study was explained and a convenient time to conduct an in depth, semi- structured interview was identified. At the interview, informed consent was obtained (*Appendix A*) and the interview was conducted by the first author following the semi- structured interview schedule formulated for this study (*Appendix B*). These interviews were conducted in a quiet, confidential space in English, although Afrikaans- speaking participants were able to express themselves in Afrikaans if desired as this is a language spoken and understood by the investigator. These interviews were conducted over a 7-month period from February to August 2018. Interviews were recorded and stored on a password protected device. Participants are identified by a study number. No remuneration was offered for participation in this study.

Data Analysis

The recorded data was transcribed by a UCT approved transcription service and the transcripts stored on a password protected computer accessible to only the investigator. These transcripts were then analyzed using the framework approach (familiarization, identifying a thematic framework, indexing, charting, mapping, and interpretation of the data). Initially, interview transcriptions were read for emergent themes, which were then coded. Care was taken to ensure that the codes accurately captured the respondent's meaning. Two investigators assessed the data independently and came to an agreement

regarding the coding list and interpretation of the data. The NVivo 12.0 software program was used for data analysis.

Ethical Considerations

The ethical standards prescribed by the Committee for Human Research of the University of Cape Town were strictly adhered to. Ethics approval was granted by the Committee for Human Research of the University of Cape Town (743/2017). If consent was required by facilities where stakeholders are employed, it was sought from the Western Cape Department of Health.

Informed Consent

This study was explained in full to all potential participants. Emphasis was placed on voluntariness of participation. Written informed consent was obtained from those who agree to participate. Those unwilling to participate were not coerced. Although this study placed no physical risks to participants, the semi-structured nature of qualitative studies may raise potentially sensitive or emotionally triggering topics. Therefore, all participants were alerted to the potential of this risk and reassured that they would be able to terminate the interview at any point or to leave the study if this were desired. If topics were triggering, this could be discussed in depth with the researcher who would provide containment. No participants wished to terminate interviews or to withdraw from the study. Further potential risks in qualitative studies include the potential that participants may be identified. Participants were aware of this potential risk but felt that the views expressed were views shared by most mental health practitioners at facilities within the Western Cape.

Confidentiality and Data Management

Participant signatures were recorded on consent forms, but the consent forms and all other measures contained no further form of identifying data. Numbers were used to identify each stakeholder within the demographic data capture sheet. These numbers were used within the qualitative data transcriptions. The transcriber was approved of by UCT and signed a confidentiality agreement before transcriptions were initiated. Digital recordings were destroyed after the transcription was complete. The transcriptions were saved to a desk top computer that is password protected. After 5 years, these transcriptions will be destroyed. The desktop computer is password protected and only accessible by the researcher.

CHAPTER 4: RESULTS

Results are organized according to the themes derived from the interviews. Specifically, these include 1) Perceived risk factors for methamphetamine (MA) use; 2) Perceived impact of methamphetamine use; 3) Available treatments for MA use and gaps in available services; 4) A potential brief treatment for MA use among patients with SMDs.

1. Perceived Risk Factors for Methamphetamine Use

Several risk factors were described by stakeholders (N=5) including easy access and normalization of use; high levels of stress and adversity within the communities; comorbidity such as depression and anxiety; low educational attainment and unemployment and a perceived lack of meaning. Adolescents and women were thought to be particularly vulnerable populations as described by one participant who said:

They have a huge trauma background so sexual abuse, domestic violence and they are using the cannabis to treat their anxiety and mandrax to come down from the meth. So the different roles the women play, they feel like their psychiatric meds slows them down. And a lot of women when I speak to them, they actually enjoy being manic because they get a lot of things done. You know, so they are able to go to work from five in the morning when they need to leave home and come back at six in the evening. They go and do domestic work or they work in retail or whatever. They are able to look after six children, you know. They are able to juggle all these things using substances. (Participant 8, social worker)

Further, patients with mental disorders were thought to be vulnerable to MA use as they may have preexisting mental health symptoms or medication induced side effects that they choose to medicate with MA for temporary relief:

And I think a lot of the patients are using Tik because obviously they want that energy. A lot of the patients also say they feel slow because of the psychiatric medication or they want something to just make them feel a bit more perked up. (Participant 13, occupational therapist)

2. Perceived Impact of Methamphetamine Use

All stakeholders (N=13) felt that MA had an impact on multiple aspects of patient presentation and care including individual impacts, family impacts and impact on care.

All stakeholders (N=13) reported individual health impacts including impacts to both mental and physical health. With regard to mental health, a dual diagnosis of MA use disorder and an SMD was felt to be common *“Naturally there is a lot of comorbidity”*. Patients were thought to present with a variety of psychiatric syndromes, most commonly mania and psychosis and presented with more severe aggressive, impulsive and sexually inappropriate behaviors requiring higher levels of care. A significant consequence of MA use was cognitive decline. Patients who used MA were described to present with impaired attention, concentration, memory, executive function and social cognition. This was considered a contributor to poor insight and poorer outcomes as alluded to by one of the occupational therapists who reported:

So, things like executive functioning, your ability to concentrate, your ability to pay attention whilst you are in a session. It impacts on their ability to take and receive what you are trying to do with them in your sessions. (Participant 12, occupational therapist)

MA use was also reported to carry a risk to physical health *“It leads to medical comorbidities which then makes the treatment more difficult”*. A few (N=3) stakeholders highlighted that MA contributed to increased risky sexual behaviors among patients. The most common consequences discussed were HIV *“Patients would say that they started using methamphetamine and they became HIV positive”*; viral hepatitis *“A patient I am seeing now used methamphetamine, became sexually disinhibited and contracted Hepatitis B”* and unplanned pregnancies. All these sequelae were reported to increase illness severity and led to more treatment complexity.

Second, MA use impacts not only on the individual user, but on their families. All stakeholders (N=13) believed that MA use and mental illness had a great impact for the families, the community and the patient’s social and occupational roles. This impact was believed to affect treatment outcomes as families fulfil an essential role in treatment and recovery. Consequences for families were believed to be far reaching and included effects to emotional, social, occupational and spiritual functioning with longer duration of substance use being linked to more significant negative outcomes. Stakeholders (N=6) believed that families were more empathetic towards patients diagnosed with an SMD in comparison to patients with a purely substance induced disorder. However, it was felt that, this understanding was impacted over time by ongoing non-compliance, recurrent admissions, ongoing family conflict, violence, aggression and illegal activities such as theft from the home. Eventually, stakeholders (N=5) reported

that families may withdraw support due to ongoing patient high risk behaviors which was reported to lead to negative consequences including homelessness and incarceration; which in turn negatively influences prognosis and recovery.

Also, if they have been using for longer there is more kind of history of problems within their home environment. So, they have been using it for so long they then lost their job because they have been using, they then lost their families because they have been using it and now they move back to their families if they have been married. And of course, there is a lot of trouble there because then they start stealing, they start taking things from the house to go and get their drugs. They then cause other kind of conflict with their family within their home. So, yes, I suppose there is more violence and more family conflict opposed to a person that has got pure kind of psych. Also, the families are more understanding when there is a psych diagnosis attached to it. (Participant 12, Occupational Therapist)

Lastly, MA use poses a significant impact to treatment and recovery. Several challenges to the treatment and recovery of patients living with a dual diagnosis were highlighted by stakeholders. All stakeholders (N=13) described how MA use has a significant impact on admission rates in primary, secondary and tertiary settings. Stakeholders reported that *“Before the methamphetamine epidemic psychiatric facilities really had a much smaller patient population with dual diagnosis”* and *“MA is one of the main drivers for admission to psychiatry”*. MA users were also perceived to relapse faster than non-methamphetamine users. This was reported to lead to an increased number of high frequency service users returning for multiple admissions and increasing system burden. It was referred to as a *“catch 22”* as average length of stay has been decreased with patients being discharged sooner and this decreased the time available for treatments such as psycho education and motivational interviewing.

The treating teams reported being negatively affected by ongoing system pressures. Some stakeholders (N=5) reported that patients who are admitted repeatedly may display deteriorating functioning and worsening circumstances which leaves stakeholders feeling that their inputs were inadequate despite giving their all amongst increasing service pressures.

*It is very disheartening...sometimes if feel like what I am doing is it even the right thing.
Do I need to change the way I do things? Am I not doing things properly? (Participant 13,*

occupational therapist)

3. Available treatments for MA use and gaps in available services

In this section existing treatments for MA use will be described and participants perceived challenges to these existing treatments.

Existing Treatments

According to most stakeholders (N=12), treatments available for MA use in the context of SMD varied widely across settings and depended on available staff, staff experience, available time and space, referral pathways and other resources. However, as highlighted by the stakeholders (N=2) only one facility responsible for the care and treatment of adult patients had a dedicated program; others relied on individual doctor, psychologist, social worker and occupational therapist input in both group, individual and family settings.

All stakeholders (N=13) were engaging in some form of evidence- based techniques to address substance use. They would engage with patients both individually and in groups in a psychoeducational format to provide information regarding MA, its risks and its health and treatment impacts.

Motivational interviewing was employed by several (N=6) stakeholders, mostly in individual sessions to explore and resolve ambivalence around MA use and encourage the desire to quit. All stakeholders (N=13) were using every available opportunity to use a motivational approach. This is demonstrated by an occupational therapist who commented:

Why do they feel that it is a benefit for them to use; so, what does the substance do for them and what do they think if they were to stop it what do they think they could replace it with, so, levels of change to see where they at. (Participant 12, occupational therapist)

Some stakeholders (N=4) employed simplified and easily digestible cognitive behavioral techniques with patients. These techniques included the identification and management of triggers and drug refusal skills. Role plays of these skills were found to be useful.

It is identifying triggers, which is actually quite a complex one but we simplify it... They want to start but they struggle, and we will even have a conversation around “well when you walk pass the merchant on the way to the shop”, so we look at the concrete things that they can do in terms of

producing response to treat substance use. (Participant 11, occupational therapist)

Several stakeholders (N=6) reported working with families for a variety of treatment related concerns including ongoing substance use. Family support was felt to be necessary to assist motivated patients in accessing further care and rehabilitation.

I will have a family session with the patient after they had a motivational interviewing session to discuss what the outcome was. I will mention the services available to the family because more so than the patient accessing the services the family needs to be in the supportive role making sure that they go to the services. (Participant 9, social worker)

All stakeholders (N=13) discussed that although patients receive other forms of social and occupational inputs aimed to facilitate recovery from both SMDs and substance use during admission, these time-limited treatments are not enough to support recovery as stand-alone treatments. Comprehensive care should include engagement with community-based programs that focus on employment, education, recreation opportunities and family treatments once patients are discharged from hospital.

There needs to be some planning for what happens after treatment, so developing social support systems and networks. (Participant 10, psychologist)

Following improvement of SMD symptoms and discharge, some (N=4) stakeholders discussed referring patients to NGOs to allow for ongoing care.

Because of the pressure it is not always possible to have more than three sessions... So, I do a lot of referrals to NGOs. (Participant 9, social worker)

Stakeholders (N=4) reported that most patients access ongoing psychiatric care from day hospitals following discharge and raised concerns that mental health teams at day hospitals may be stretched, substance treatment groups are not available, and medications may not be in stock. One psychiatrist highlighted that we need to address treatment of all mental disorders including substance use with the same urgency that we manage physical illnesses.

If more than 60% of patients in acute services had TB or HIV, we would be running very active services to address that... but up to 80% of patients are using substances and it is often not even recognized or addressed. (Participant 1, psychiatrist)

One of the hospitals had a dedicated dual diagnosis program. This is an open, group- based outpatient program that relies mostly on psycho- education, motivational interviewing and relapse prevention skills that offered integrated substance use treatment and mental health treatment. It had been adapted overtime to meet service pressures.

Perceived Challenges to Existing Treatments

Stakeholders (N=13) described several challenges to existing treatments offered for MA use in the context of dual diagnosis. These challenges included treatment system factors, social factors and individual and illness factors.

First, treatment systems refer both to the health system and to substance treatment facilities. Stakeholders (N=6) reported that health system pressures were felt at both district and tertiary level with ongoing bed pressures due to multiple factors. Stakeholders (N=6) held that this led to rapid discharge rates and impacted on time for treatments and time for recovery to baseline. According to the stakeholder working in a district hospital (N=1), district level services did not always have trained staff who were able to deliver substance treatments. Having skilled therapists, social workers and counsellors available at district would assist as reported by one psychiatrist who said:

What would be very useful to help our meth problem at district level would be a cadre of people who are going to do motivational interviewing on everybody that we discharge. It would make a massive difference... I think it would also just make us feel a lot more hopeful about the vast majority of our patients. (Participant 4, psychiatrist)

At tertiary level, stakeholders (N=5) reported that system pressures played a significant role and again led to limited time for substance treatments with increasing patient numbers. Stakeholders (N=5) felt that amongst themselves there was no specific dedicated space for substance treatment.

Because of the pressure it is not always possible to have more than three sessions or more than

two sessions actually with the patient. (Participant 9, social worker)

Cognitive sequelae of MA use was felt to impact significantly on patient's ability to actively participate in psychosocial rehabilitation treatments as reported by half the stakeholders (N=6). They elaborated that combination of decreased time for psychosocial treatments plus needing to adjust these treatments for patients with impaired cognition led to negative impacts on long term outcome.

Half of the stakeholders (N=7) reported that following discharge of patients from hospital, patients may rapidly return to MA use and become intoxicated. These stakeholders held that this affects engagement with all further treatments, family engagement and wider socio-occupational recovery.

A few stakeholders (N=2) mentioned that treatment compliance may also be affected by medication side effects such as sedation, cognitive slowing and decreased libido. To compensate for this, it was reported that patients may also increase MA use to mitigate side effects which impacts on negatively impacts on recovery and leads to readmission.

A few stakeholders (N=4) believed that external substance use treatment centers were highly variable; while some facilities were of good quality, others may not be evidence based. They reported that the available facilities often had long waiting lists and could be costly. They also shared concerns that although higher- functioning patients could benefit from traditional substance treatment programs such as 12 step programs; patients with residual symptoms or cognitive impairment could not assimilate the information and skills given. Some stakeholders (N=4) felt that patients with SMDs were possibly stigmatized by these facilities and other service users.

There are patients with serious mental illness that attend SANCA or whatever and they do okay or Cape Town Drug Counselling Centre and they do okay but there are usually your more higher functioning. People with your severe residual symptoms would be disabling mental illness often do not fit in there and often do not do well there. (Participant 1, psychiatrist)

Three stakeholders reported stigma at district and tertiary levels. Stigma is enacted by other patients, families and staff *"Stigma is not limited to families. It is also there amongst doctors and nurses in*

hospitals". This stigma is may be more pronounced at district level amongst all non-mental health medical professionals working with mental health users and impacts on patient care and treatment options. Stakeholders felt that MA users may be more heavily stigmatized due to at risk behaviors and that staff hold less hope for a full recovery.

So, I would guess that my non-psychiatric colleagues on hearing that patients is methamphetamine using gets treated in a much less kind and thoughtful way. (Participant 4, psychiatrist)

Second, perceived social challenges described by the stakeholders included challenges within the family and the wider community. All stakeholders (N=13) explained that family factors play a significant role in patient care. They highlighted multiple key issues including that patients are often breadwinners and caregivers with significant responsibilities at home and therefore find it hard to attend rehabilitation centers or to remain longer in hospital. A second key issue was that, once patients are discharged, it is often costly to return to resourced, tertiary centers for follow- up. Lastly, stakeholders (N=7) explained that family support was key to motivating and supporting patients to access substance treatment services, but this may not occur if families are burnt out and tired of assisting.

I think a lot of the time families are really at a loss, not necessarily because of the substance use... They really struggle to get along interpersonally. (Participant 6, psychiatrist)

That comes up often in the family meetings that we have in the ward or when the family brings the patients. They kind of say, "Why should we help them? Why should we bring them to a clinic, they kind of deserve it. They choose to use Tik."(Participant 3, psychiatrist)

Stakeholders (N=5) reported that wider community factors pose a significant treatment challenge as patients are discharged back into communities where substances are readily available, where their peers and even families are using and where all the antecedents for substance use still exist. Stakeholders discussed (N=5) that treatment facilities are not always available at community level necessitating travelling to treatment facilities. Patients trying to access these facilities may encounter dealers or substance using peers on their way to treatment.

On a daily basis they are confronted with other active users and this becomes the big challenges for recovery. (Participant 10, clinical psychologist)

Lastly, all stakeholders (N=13) held that illness related factors had significant impact on any individual or group-based substance treatments. The symptoms discussed included aggression, irritability, positive and negative psychotic symptoms and impaired cognition which all affected patient's abilities to engage in treatment treatments. Of concern was impaired cognitive functioning due to SMD, MA or psychiatric medications. Stakeholders (N=3) felt that they needed to keep educational information simple, short and repetitive. Some stakeholders (N=4) reported that skills-based sessions such as CBT also required simplification, repetition, and practice. Of concern among stakeholders (N=6) was that the time-restrictions of an acute service severely limits the repetition leading to a lack of completeness of psychoeducation and CBT skills training. They reported that this led to patients leaving the service with limited substance treatment. Stakeholders (N=2) also reported that group interactions could prove challenging with patient's being reluctant to engage with the task at hand or engaging in verbal conflict with each other. Patients may also feel stigmatized by their diagnosis and unwilling to engage in treatment.

4. A Potential Screening and Brief Treatment for Methamphetamine Use among Patients with SMDs

Under this section I shall discuss suggestions for a potential treatment; management of treatment challenges; and the treatment team and task sharing.

Suggestions for a Potential Treatment

The vast majority (N=11) of stakeholders felt that offering a brief treatment for patients with MA use in the context of dual diagnosis would be useful in addressing a precipitating and perpetuating factor of mental illness.

I am treating people. I am treating their mood, their mania or their depression or their psychosis. And then they get better... And they go home and they get back to using...The methamphetamine is leading to the mania or the depression or the psychosis... But we are not doing anything to treat the underlying cause. (Participant 3, psychiatrist)

One participant commented that "early again, is key" and that early intervention could be facilitated by

implementing routine screening for comorbid substance use among patients at initial presentation to outpatient clinics.

The problem with people who present to in- patient services is that they have more severe problems anyway. But I think there is definitely a place for community services, because community services allow people to be caught early, before the problems progressed to such a point that they need hospitalization. There is also less stigma in providing services at a community level versus going to a hospital. (Participant 10, psychologist)

Stakeholders agreed that a possible brief treatment required several key features too be met:

Accessibility and affordability

Firstly, all stakeholders (N=13) agreed that a potential treatment should be easily accessible and affordable for patients. Most (N=9) stakeholders felt that such a treatment for patients with dual diagnosis should be offered at community level as this could allow for early treatment following screening before patients present to inpatient services. This was suggested as a way to improve patient outcomes and prevent admissions which would in turn take some pressure off in-patient psychiatric services. Most (N=9) stakeholders felt that integrating such a treatment into community mental health clinics would be most appropriate allowing for integrated care, easy referral, and accessible care. One stakeholder felt that perhaps such a treatment should be offered in community center which would be accessible but would be away from mental health services and may carry less stigma. Stakeholders (N=9) felt that integrated care at community level minimizes travel costs and service costs. Additionally, they believed this meant that community services would be available once patients are discharged from inpatient care and could be initiated once patients are recovering more from their psychiatric symptoms. One of the challenges identified with offering such a service at community level was that there are high levels of violence in communities, which limits access to care. A few (N=4) stakeholders suggested mirroring such a treatment in tertiary settings, mostly in pre- discharge units to allow easy access to initial care with down referral to community mental health services for ongoing care. This would also allow for repetition of the same message and skills.

There is value in an intervention within the context that you live in and struggle in. (Participant 11, occupational therapist)

Structure

Second, several of the stakeholders (N=5), specifically the occupational therapists and social workers; agreed that a brief, time-limited and structured treatment would be useful. This group of stakeholders felt that sessions should be short, possibly limited to 15 or 20 minutes with multiple sessions of the same topic in a week, to accommodate for patients with cognitive impairment and to allow for reinforcing off information. They felt that the number of sessions could be limited.

It should be a short-term treatment. If you are really looking to reach enough people, but it should be quite comprehensive in what it is able to offer. (Participant 9, social worker)

Group versus individual treatment

Third, half of the stakeholders (N=6) felt that both group treatments and individual treatments offered advantages and disadvantages that should be carefully considered. They discussed how groups had several advantages including allowing for more people to be reached; enabling patients to practice skills and to learn from each other's experiences; and minimizing stigma as it demonstrates that other people have similar struggles. However, one stakeholder shared that groups bring group dynamics which must be carefully facilitated by keeping groups small and having more than one facilitator. Further, groups with patients of mixed educational and cognitive abilities need to be facilitated and adapted with care. The gender dynamics were also of concern among stakeholders and a suggestion was made that separate groups for men and women reduced gender dynamics and prevent exploitation of more vulnerable women. Stakeholders felt that individual sessions also offered advantages including more undivided attention from the person delivering the treatment which allows the patient to work at their own pace and for sensitive information to be discussed. However, stakeholders (N=2) discussed that this is more labor intensive for the person delivering the treatment as it allows for fewer people to be reached together. An occupational therapist suggested that a combined approach may be most helpful.

I think it would be nice to do a closed group because patients generally go through the phases of group development as well. So, if they start at the same time you would find that the cohesiveness and the sharing would happen at a later stage opposed to if you have an open group where you have random people joining all the time and now you need to open up about something really personal to you. (Participant 12, occupational therapist)

Inpatient versus outpatient approach

Fourth, half of the stakeholders (N=6) felt that there were advantages to either an inpatient or an outpatient approach. The advantages of inpatient care that were discussed included allowing for treatments whilst the patient was still motivated and not surrounded by life stressors; however, it was believed that most patients would want to go home to their responsibilities instead of remaining in hospital longer. Multiple barriers have previously been discussed regarding inpatient treatment. Having a dedicated dual diagnosis inpatient unit was something that many stakeholders (N=6) suggested but they included that this could lead to multiple service challenges including available space, available staff, treatment costs and patient motivation to stay in hospital to the fore. Outpatient, community treatments have previously been discussed as being easily accessible, affordable, and allowing for early intervention. One suggestion was to offer a continuum of care, with initiation in hospital and continuation at community level.

With the limited resources we have now, they get discharged before they are really ready for an brief treatment. So, what would be great is, if we could have another let us say four-week program or we could have more intense outpatient treatment or something else, in addition to what we offering now. (Participant 3, psychiatrist)

Integration into existing services

Fifth, all stakeholders (N=13) felt that any brief treatment should be integrated into existing treatment services allowing access to multiple aspects of service at once including medical plus social and occupational interventions. This would allow team members to offer a cohesive treatment approach for each patient.

It has to be integrated. I do not think it could be standalone... I think the danger of that is that the individual is pathologized and it reinforces the notion of fixing the individual, taking the individual out of his or her setting, fixing him or her and putting him back... It just does not work. It is like taking a diseased tree, from a diseased forest trying to fix that tree, heal it and then put it back into the same forest. It is just not going to work. (Participant 5, psychologist)

Components of treatment

All stakeholders (N=13) agreed that over the course of a structured brief treatment, sessions should tackle different components including psychoeducation, motivational interviewing, cognitive and behavioral interventions plus family involvement. Although some of these components are utilized already by stakeholders, they felt that having a dedicated, structured treatment with dedicated role players would allow for cohesive treatment messages and space for additional treatment components not yet incorporated. The majority (N=12) of stakeholders stressed that these components could be structured to be simple and use creative formats. They also stressed that all potential treatment components should be kept simple and be reinforced.

I think each treatment must have a couple of components. I think it needs to educate people and provide them with information about their substance use and how it impacts on their mental health, if it is dual diagnosis treatment and the relationship between mental health and substance use. (Participant 10, psychologist)

Psychoeducation was discussed by stakeholders (N=4) as being able to provide information regarding MA use, its effects, its impacts on mental illness and treatment compliance. They elaborated that risks to both mental and physical health need to be discussed. The mental health risks that they felt needed to be discussed included mental health symptoms such as irritability, decreased sleep, increased energy psychosis and aggression and the possibility of long term multifactorial cognitive impairment. They felt that patients should be able to gain an understanding of how MA use impacts treatment, compliance and prognosis; and how ongoing MA use may lead to long term consequences such as repercussions of families, functioning and need for recurrent admissions. Stakeholders (N=2) elaborated that given the physical health risks that MA poses, psychoeducation needs to include these risks and incorporate harm reduction tools to alleviate these risks. One such example mentioned was increased sex drive and risky sex practices linked to HIV; safe sex practices such as condoms and contraception need to be explored. One stakeholder suggested using engaging forms of media such as short, online videos to educate patients about the effects of substances. Stakeholders (N=4) agreed that psychoeducation should be delivered in an open, non-judgmental approach and could take creative formats such as pictures and videos.

I think a lot of people do not actually have the right fact about their substance use and how it

impacts on their mental health. I think it also needs to educate people about the recovery process particularly for methamphetamine use disorders because it is not about getting clean, it is about staying in recovery and that is how it takes time. (Participant 10, psychologist)

Stakeholders (N=6) stated that motivational interviewing should be used to explore the ambivalence related to changing substance use. They felt that it could be offered as part of a brief treatment both in group and repeated in individual sessions which allows for both peer input to motivate for change and for individual repetition.

Motivational Interviewing is also quite good in terms of harnessing patients' motivation to change and allowing them to see the adverse and the positives of making change. (Participant 9, social worker)

Suggested cognitive techniques included identification and management of triggers. Again, stakeholders (N=3) suggested using creative ways such as role play and writing to identify these.

Then I think the treatment needs to help people to deal with all the factors that keep them using substances... Where coping skills are managed best and strategies for better emotional regulations are important. And here the various tools versus the sort of cognitive and behavioral and more mindfulness-based strategies can be useful. (Participant10, psychologist)

Behavioral treatments discussed by a few stakeholders (N=2) focused largely on relapse prevention and drug refusal techniques.

Another behavioral treatment discussed by half of stakeholders (N=6) was contingency management. Traditionally this takes the form of rewarding patients for drug- free urine samples. The some stakeholders (N=4) felt that even attendance should be rewarded. This can be costly, but two stakeholders suggested creative forms of contingencies:

A way to get patients to continue to come is to start a project together... So, if they are coming twice a week for four weeks at the end of it you have got something tangible to show. That would make them feel proud of what they have been doing over the past four weeks. (Participant 12, occupational therapist)

They all had a community garden. Everyone worked on the garden as they were doing their groups and if you wanted to take from the garden as well. (Participant 3, psychiatrist)

A few stakeholders (N=2) discussed harm reduction techniques as a possible measure to address the harms of substance use concurrently with other treatments. They felt that patients did not always appreciate the physical risks of ongoing MA use and recurrent SMDs and associated treatments. Suggestions centered on contraception and HIV prevention.

Some stakeholders (N=5) felt that it was important to identify peer support networks within communities for substance free behaviors. Additionally, aftercare in existing Twelve Step groups was suggested by one stakeholder.

And then I think there needs to be some planning for what happens after treatment, so developing social support systems and networks and community involvement. (Participant 10, psychologist)

A family session to address psychoeducation, discuss the treatment and how families could reinforce skills and provide any additional support was suggested by a few stakeholders (N=2).

Management of Treatment Challenges

All stakeholders (N=13) felt that all the existing challenges previously discussed applied to a brief treatment. They emphasized these additional challenges:

Treatment costs

First, most stakeholders (N=7) felt that attending a treatment could include multiple costs such as transport costs, cost of the program and time out of work. They suggested that this could be managed by integrating treatments into communities or providing vouchers for transport. Obtaining funding for the treatment so that patients did not need to cover the cost was suggested. Additionally, incentivizing the treatment with vouchers or goods as a form of contingency management was thought to be useful. Offering tea and biscuits at the treatment was thought to be something that patients would appreciate.

People do not have money to always attend so if you have transport you improve that, if you can make it fun, have coffee and biscuits or whatever. (Participant 1, psychiatrist)

Stigma

Second, all stakeholders (N=13) believed that stigma posed a significant challenge and a contributor to ongoing use and non-compliance. They suggested multiple ways of addressing stigma during the treatment such as groups with patients with similar challenges and offering the treatment at neutral locations. One stakeholder suggested that addressing stigma needed to take place at a far higher level.

Cognitive Impairment

Third, cognitive impairment was thought to be a significant barrier. A few stakeholders (N=4) suggested that offering closed groups for patients with similar cognitive abilities would be ideal, allowing groups to work at different paces. They elaborated that content would need to be very simple and very skills based for patients with significant impairment.

Lack of social supports

Fourth, all stakeholders (N=13) felt that patients often relapsed because they returned to the same communities with the same triggers and no new roles or support. Some stakeholders (N=7) felt that treatments that targeted improved relationships and supportive functioning or supported employment would go a long way to prevent relapse.

I think also finding meaning after substance use becomes challenging because many people come from very disadvantaged backgrounds and they have few other alternative sources. So I think as a provider you have to become quite a creative and work quite carefully with the person to try and find sources that they can create a meaningful life beyond substances. (Participant 10, psychologist)

Assertive Community Treatment

Lastly, tertiary centers make use of assertive community treatment (ACT) approaches for patients with treatment resistant SMDs. In the Western Cape, these teams are limited by limited resources. A few stakeholders (N=3) felt that if funding could be extended for ACT to reach more patients and to incorporate a brief treatment for substance use, this could be helpful.

The Treatment Team and Task Sharing

When asked who should be responsible for the treatment, it was agreed that a multidisciplinary team approach is key with team members who possess the necessary skills to work with patients and substance users. Various team members felt that they could contribute in different ways. Some

examples given were that doctors could provide simplified psychoeducation around neurobiological effects of drugs; social workers are skilled at working with families and occupational therapists teach skills well.

Most stakeholders (N=8) felt that it would be possible to task share with community mental health nurses at community clinics, but that time and patient load may be prohibitive. Task sharing with lay counsellors was met with mixed responses. Some (N=7) it was felt to be possible with good supervision and training; whilst others (N=1) held that patients with SMDs and MA use would pose too many challenges.

CHAPTER 5: DISCUSSION

This study contributes to the growing evidence base of the need to integrate treatments for substance use, including MA, into treatments for patients with SMDs by exploring the views of key stakeholders on a brief treatment to address methamphetamine use among patients with a dual diagnosis. Findings suggest that 1) There is an urgent need to integrate treatments for MA use into current treatments for SMDs. 2) Existing treatments for MA use in patients with SMDs have significant treatment challenges within our context 3) Several proposals for the structure and integration of a potential treatment should be considered.

Need to Integrate Treatment for MA into Existing Services

To begin with, all stakeholders believed that there is an urgent need to integrate a treatment for MA use into current treatments for SMDs as they felt that MA is easily available with normalized use. Further, all stakeholders held that in patients with dual diagnosis, MA use leads to significant impacts to the individual, the family and to treatment and recovery treatment system.

According to the stakeholders, individual impacts included impacts to mental and physical health. They felt that patients with SMDs and MA use presented with a variety of psychiatric symptoms, most commonly mania and psychosis. Further, symptoms of cognitive impairment, aggression, impulsivity and sexual disinhibition among patients with SMDs who used MA were reported to be more severe than patients who did not use MA. This was consistent with international data which reveals that MA use results in multiple psychiatric sequelae including different psychiatric syndromes (Rawson et al., 2002) with symptoms of impulsivity and aggression (Maxwell, 2005). A South African study has shown increased aggression in MA users with and without psychotic symptoms, suggesting that MA use is the driver of aggression (Uhlmann, Ipser, Wilson, & Stein, 2018). Cognitive impairment due to MA use has received significant attention in the literature and includes impairment of multiple cognitive domains including attention and concentration, learning and memory, working memory, verbal fluency, executive function and social cognition (Barr et al., 2006b; Potvin et al., 2018). This cognitive impairment significantly affects treatment of MA use even amongst people without dual diagnosis (Potvin et al., 2018). Any potential treatment for patients with SMDs and MA use would need to cognizant of cognitive sequelae. Stakeholders also reported physical health complications among MA users, most commonly

HIV and other infections. These comorbidities were found to further impact patient presentation, illness severity and treatment complexity.

Physical consequences discussed by stakeholders included the risk of infections such as HIV and viral hepatitis; and unplanned pregnancies. Previous literature has focused on comorbidity of MA use and HIV due to an increase in risky sexual practices such as increased libido and impaired social judgment in MA users (Simbayi et al., 2006). Further, substance use environments may be associated with risky behaviors and substance use may lead to with sexual violence (Browne & Wechsberg, 2010). Given the high prevalence of HIV in South Africa of 12,2% (Zuma et al., 2016); it would be important when designing an treatment for patients with dual diagnosis who use MA in South Africa to include information around HIV and other infections and their transmission and prevention. This approach has shown promising findings in previous studies (Browne & Wechsberg, 2010).

Within this study, stakeholders reported that MA use also impacted families and wider socio-occupational roles with reported impacts including emotional, social, occupational and spiritual effects with ongoing negative effects leading to worsening outcomes. Substance use leads significant mental, physical, emotional and financial effects on families (Groenewald, 2018). A study conducted in Cape Town, South Africa examined the experiences of the caregivers of youth using MA (Asante & Lentoer, 2017). In that study, caregivers reported negative emotions including shame, fear, and self-blaming with additional disruption to family functioning and financial strain (Asante & Lentoer, 2017). A second qualitative study conducted in Cape Town, South Africa among MA users described emotional and physical violence within the families of MA users. MA use was found to impact on family social and economic functioning. And lastly, MA led to disrupted parenting of children of MA users (Watt et al., 2014). Despite these effects, family interventions are not always integrated into substance use treatment programs. Support services may be of great value in enabling families to cope with psychosocial stressors and to strengthen family relationships (Groenewald, 2018). This in turn would support recovery for the individual substance user. Incorporating family inputs into a potential brief treatment is therefore vital.

Further, MA was reported to have significant impacts to treatment and recovery with increased admission rates, high frequency users and negative impacts on treating teams. A previous study conducted in the Western Cape, South Africa found that substance use, including MA use, was one of several contributors to medication non-adherence, symptom recurrence and leads to readmissions (Botha et al., 2010).

Given that MA carries significant impacts to mental and physical health, to family and broader socio-occupational roles, and to treatment and recovery as reported by stakeholders; addressing MA use in the form of a brief treatment has the potential to decrease HIV incidence, decrease severity of mental disorder symptoms and presentation, improve family relationships and reduce readmissions.

Challenges to Existing Treatments

Despite this clear need for services, existing treatments for MA use in patients with SMDs are met with significant treatment challenges within the South African context. Treatment of MA and other substance use among patients with SMDs is highly variable across settings and dependent on availability of staff, experience of staff and potential time and space within pressured and resource- limited environments. Within the South African context, multiple local studies have found these treatment challenges for substance use to include negative perceptions of treatment, easy availability of substances with normalized use and motivations to quite with a lack of awareness of treatment options. (Meade et al., 2015). Further barriers to treatment included fragmented service delivery; poor capacity and other infrastructural concerns; and limited resource allocation to treatments which limits affordable and accessible services particularly amongst disadvantaged communities (Bronwyn Myers et al., 2008). These barriers were even more pronounced amongst women (B Myers et al., 2011); and among black and colored populations (Bronwyn Myers, 2013).

International literature has shown that dual diagnosis is best managed with integrated modified multimodal approaches (Drake & Mueser, 2000; Subodh, Sharma, & Shah, 2018) including psychoeducation (Chilton, Crone, & Tyson, 2018), motivational interviewing (Subodh et al., 2018), cognitive behavioral techniques such as contingency management and relapse prevention (Subodh et al., 2018), family therapy (Drake & Mueser, 2000); (Richards, Doyle, & Cook, 2009) and twelve step supports (Bogenschutz, Geppert, & George, 2006). In South Africa, when available, treatment strategies make use of several of these evidence-based treatment modalities including psycho education, motivational interviewing, modified cognitive behavioral approaches, family intervention and referral to NGOs and peer support systems.

Stakeholders agreed that these existing treatments have multiple perceived challenges. First, stakeholders stated unequivocally that significant service pressures existed in both district and tertiary inpatient setting; these impacted on the time available for treatments and recovery. In South Africa and globally, deinstitutionalization has led to a decrease in inpatient admission beds available and has

shifted the primary focus of psychiatric admissions to stabilization of symptoms as opposed to recovery from SMDs with limited time available for inpatient rehabilitative treatments (Botha, Coetzee, Koen, & Niehaus, 2018), (Vigod et al., 2013). This has led to a decrease in average length of stay for patients which in turn leads to early readmissions and contributes to the development of high frequency service users (Botha et al., 2010) with up to one quarter of patients being readmitted 3 months after their initial discharge (Docrat et al., 2019). This stretches existing financial resources available for mental health significantly which impacts financial resources available to contribute to and strengthen existing mental health care services especially at district and primary care level (Docrat et al., 2019). Second, stakeholders felt that not all staff within district and tertiary inpatient services possessed the necessary skills to manage dual diagnosis, this was felt to be particularly true of non- mental health staff in district hospitals. Internationally, it has been stated that not all doctors, including psychiatrists, are thought to be adequately trained to assess and treat patients with SUD (Renner, Quinones, & Wilson, 2005). Within South Africa, there have been multiple studies reporting difficulties with treatment of severe mental disorders within general hospital settings, including staff expertise (Petersen & Lund, 2011). Treating patients with dual diagnosis requires further clinical expertise including appropriate training in knowledge of SUD (Renner et al., 2005), motivational interviewing, cognitive behavioral therapy and psychopharmacology (Renner Jr, 2004). These skills may not be available in all settings. Third, stakeholders repeatedly focused on the treatment challenges posed by cognitive impairment and its effects on patients' abilities to internalize and practice treatments. The extent of cognitive impairment due to MA has previously discussed and has a significant impact on treatment in people without a dual diagnosis (Potvin et al., 2018). Stakeholders had several suggestions for adapting treatments for patients with cognitive impairment and these would need to be carefully implemented and monitored. Fourth, stakeholders highlighted that following discharge patients return to communities where MA is easily available and return to preexisting stressors which leads to relapse. MA is widely available within the Western Cape and poses significant mental health treatment burden (Pasche & Myers, 2012) with approximately one third of MA users presenting with comorbid mental disorders (Akindipe et al., 2014). Fifth stakeholders felt that patients may manage treatment side effects and mental health symptoms with MA use. Sixth, given the limited times available for treatments within inpatient facilities, patients were referred to external treatment centers which were thought to be highly variable in their approach to MA use in dual diagnosis. This is in keeping with international trends where MA use may be to self-medicate SMD symptoms of psychotic, mood, anxiety and other disorders (Gouzoulis-Mayfrank et al., 2017). Lastly, families may be burnt out and refuse to provide ongoing care and support for patients. A

potential treatment for patients with MA use in the context of SMDs would need to take that into account. As previously discussed, MA use carries significant emotional, social and economic burdens for families (Asante & Lentoor, 2017); (Watt et al., 2014).

A Potential Integrated Treatment

Most stakeholders believed that a brief treatment for MA use in the context of SMDs would be a beneficial step in managing a significant contributor to mental illness. Screening and brief intervention and referral to treatment (SBIRT) for substance use is an approach designed to deliver an early treatment for people with substance use (McCance-Katz & Satterfield, 2012). Brief intervention is aimed at developing insight into substance use and to develop motivation to change (McCance-Katz, 2012). Referral to treatment provides more extensive care for individuals screened with more severe substance use (McCance-Katz, 2012). Brief treatments exist along the SBIRT continuum as an intermediary between brief intervention and referral to treatment (Babor, 2017). Brief treatment is aimed at patients with higher severity of substance use and may require more resources (Babor, 2017). Typically, brief treatment takes the form of a structured intervention comprising of five to twelve individual sessions drawing from motivational and cognitive-behavioral treatment modalities (Babor, 2017).

Within the Western Cape, several SBIRT programs have been implemented with success in a variety of settings. In one study, a brief treatment was offered to patients presenting to a district hospital (Sorsdahl, Stein, Weich, Fourie, & Myers, 2012). This study demonstrated that offering SBIRT at district hospitals was accessible to populations groups not presenting to traditional treatment services; that SBIRT was both feasible and acceptable to patients presenting to district hospitals; and SBIRT was effective in reducing substance use (Sorsdahl et al., 2012). A second study examined the feasibility of integrating SBIRT for substance use and depression into routine antenatal care (Katherine Sorsdahl et al., 2015). This study demonstrated that integration of SBIRT into antenatal care was both feasible; SBIRT was effective to address depression and smoking but did not alter alcohol and other drug use significantly (Katherine Sorsdahl et al., 2015). Although staff found this program barriers, they identified some implementation challenges including increased workload and limited time; lack of clearly delineated referral pathways for women with severe depression; and perceived limited disclosure of maternal substance use (Katherine Sorsdahl et al., 2015). A third randomized control trial investigated the integration of SBIRT within the emergency centers (K Sorsdahl, Dan J Stein, et al., 2015). This study demonstrated that SBIRT is feasible within emergency centers and effective at reducing substance use

among high risk individuals (Sorsdahl et al., 2012). Further research was felt to be needed to investigate if these effects were sustained long term (K Sorsdahl, Dan J Stein, et al., 2015). A fourth study examined delivery of treatments for common mental disorder such as alcohol use disorder and depressive disorders by community health workers within primary care (Bronwyn Myers et al., 2019). This study demonstrated further feasibility and acceptability of a task shared mental health treatment for patients with common mental disorder at primary care level (Bronwyn Myers et al., 2019). These studies therefore demonstrate several valuable lessons to be considered when developing a brief treatment for MA use among patients with SMDs. However, significantly, none of these studies focused on SMDs and this is an immense gap that requires careful attention.

Stakeholders proposed several components and prerequisites for that treatment. First, screening for substance use, including MA, should be conducted for all patients at initial and subsequent presentations, whether as an inpatient or an outpatient. Integrating screening and brief treatments for substance use into community services allows for early, timeous treatment within international cohorts (Babor et al., 2017). Second, a brief treatment for MA use would need to be accessible and affordable and may be best placed into community clinics. However, there was thought to be value in offering a duplicate brief treatment within general hospital and tertiary inpatient services to allow for repetition of the same message at multiple levels of care. As previously discussed, brief treatments have been demonstrated to be acceptable, feasible and effective in studies conducted in multiple settings within the Western Cape (Sorsdahl et al., 2012); (Katherine Sorsdahl et al., 2015); (K Sorsdahl, Dan J Stein, et al., 2015); (Bronwyn Myers et al., 2019). Integration of care into primary level care has been met with challenges such as resource limitations (Tomlinson et al., 2016) and would require strengthening the system including staff training and support to be successful (Thornicroft et al., 2018). Third, a brief time-limited and structured treatment would be useful with short sessions repeated several times over the course of the week to accommodate for patients with cognitive impairment. Given the impact of cognitive impairment on treatments of MA use, studies have examined a variety of cognitive training techniques; these have included computerized delivery of treatments that are simplistic, repetitive and adaptable (Sofuoglu, DeVito, Waters, & Carroll, 2013). It may be possible to combine similar ideas into a potential brief treatment for example simple written messages and diagrams that are step by step and can be worked through during individual and group sessions. Fourth, treatments that offered individual components, but group reinforcement were thought to be beneficial for practicing skills and to reach multiple patients simultaneously; care would need to be taken to facilitate these groups paying attention to individual cognitive abilities and particularly vulnerable patients. Peer persuasion groups

are described in the literature as groups for patients with SMDs and substance use (Kofoed & Keys, 1988). These groups are facilitated and use a motivational format to allow group members to argue for substance change (Kofoed & Keys, 1988). These have been effective in decreasing substance use (Kofoed & Keys, 1988). There is less evidence regarding other modalities as group treatments for patients with dual diagnosis. Building a dedicated peer persuasion group into a ward structure could work synergistically with a brief treatment. Fifth inpatient or outpatient approaches were thought to be equally advantageous; one suggestion was a continuum of care with initiation as an inpatient and continuation at community level, but this would require manpower. However, the literature suggests that an integrated approach within both inpatient and outpatient programs between mental health and substance treatment teams is the most effective in managing dual diagnosis (Bogenschutz et al., 2006). Sixth, the brief treatment must be integrated into existing services. Implementation and barriers to this have been discussed above. Lastly, sessions would need to be multimodal and include components of psychoeducation, motivational interviewing, harm reduction techniques, cognitive-behavioral including contingency management and relapse prevention, plus family involvement. International literature has shown that dual diagnosis is best managed with integrated modified multimodal approaches (Drake & Mueser, 2000; Subodh et al., 2018). But these would need to be simple, creative and integrated into existing programs.

Stakeholders also felt that a potential brief treatment may face potential challenges and proposed some adjustments and adaptations. First, treatments may be costly. This could be mitigated by meeting transport costs, offering contingency rewards or offering treatments within communities. From a systematic review, contingency management for patients with dual diagnosis, were found to be an effective treatment (Drake et al., 2008). Second, stigma was perceived as a significant barrier; this could be addressed within groups or by offering the treatment within neutral, community locations. Stigma may need to be addressed at a broader level. Third, cognitive impairment as already been mentioned, proposed ways to manage this include simplified content, smaller groups or individual sessions that were short and repetitive. Fourth, the wide availability of MA in communities was a significant challenge. Broader treatments such as employment and recreational opportunities were proposed as solutions. From local literature, people may initiate MA use due to boredom, thrill seeking and lack of recreational and occupational opportunities (Hobkirk, Watt, Myers, Skinner, & Meade, 2016). Creating access to these opportunities on a broader sociopolitical level may assist to decrease MA use. Lastly, ACT approaches were suggested, however more resources would be required.

Stakeholders held that different members of the treatment team could offer different components of a brief treatment, this would allow for the maximizing of existing skills and time. Generally, a task sharing approach was recommended. Suggestions were that doctors could provide simplified psychoeducation sessions workers are skilled at working with families and occupational therapists could teach skills such as relapse prevention. Although task sharing to community nurses was considered, they would need to be consulted to determine the acceptability of this approach. Task sharing to lay counsellors was met with mixed feelings, some thought that this would be possible with enough supervision; whilst others felt that lay counsellors may not have the prerequisite skills to managed patients with dual diagnosis. Task sharing allows for sharing of tasks from highly specialized individuals to other individuals with less specialized training (Hoeft, Fortney, Patel, & Unützer, 2018). This is an approach from global mental health care that has been implemented within resource limited settings to improve delivery of mental health treatments (Hoeft et al., 2018). It allows for a limited number of specialized individuals to work collaboratively with existing community resources and maximizes the reach of mental health treatments within a population (Hoeft et al., 2018). Within a South African context, deinstitutionalization of mental health care and the need for reciprocal up- scaling of care available at primary care level has led to the investigation of task- sharing services with community health workers and lay counsellors to allow for delivery of effective mental health services (Spedding, Stein, & Sorsdahl, 2014). A mental health training program for community health workers conducted within the Western Cape found that evidence- based mental health training improved attitudes, knowledge, and confidence among community health workers (Sibeko et al., 2018). The impact of this training on patient care requires further investigation (Sibeko et al., 2018). A thematic analyses of nine studies conducted in South Africa focused on task sharing with non-specialist health care workers for delivery of evidence- based treatments for common mental disorders, including depression and substance use, has demonstrated effectiveness of task- shifting treatments (Spedding et al., 2014). However, none of the nine studies focused on SMDs. Given the evidence for task sharing for management of common mental disorders, it is important to investigate task sharing for SMDs as this may assist in addressing an important treatment gap (Hanlon et al., 2016). Further investigation is therefore needed regarding feasibility, acceptability and efficacy of task shared treatment for SMDs within South Africa.

Limitations

This study had several limitations: First, our sample of health care personnel were predominately from specialist inpatient psychiatric hospitals in the Western Cape and is not necessarily representative of all health care providers in all settings. The degree to which these findings can be generalized to other

settings is unknown. The Western Cape is one of the better resourced provinces with higher rates of SMDs and MA use than others, other settings may differ markedly. Second, this study focused on the opinions of health care providers. Before integrating a brief treatment into current practice, it would be beneficial to understand the perspective of the potential service users and their needs. Third, the importance of family participation in the treatment was highlighted by stakeholders. When planning a treatment, it would be of paramount importance to obtain perspectives of families and caregivers of MA users with dual diagnosis. Fourth, there may have been information biases. Given the nature of the interviewer, participants may have given biased opinions reflecting what they thought that the interviewer wanted to hear. The researcher was known to and a former colleague of several stakeholders which may have led to further disclosure of information biases.

Implications

MA use among patients with SMDs carries significant impacts to patients, their families, the health system and the treating team. Current treatments are met with significant barriers. A potential brief treatment piloted at community level may be able to meet some treatment needs.

CHAPTER 6: CONCLUSIONS

From this study there is evidence of an urgent need to integrate treatments for MA use into current treatments for SMDs as MA is easily accessible with high rates of MA use among the general population and people with mental disorders. Furthermore, existing treatments for MA use in patients with SMDs have significant treatment challenges within our context. The majority of stakeholders who participated in this study felt that integrating a brief intervention into existing treatments for patients with SMDs who used MA was necessary

Several prerequisites and components to the treatment were proposed including routine screening for substance use; the treatment would need to be accessible and affordable; there are advantages to individual or group formats employing a variety of evidence based techniques and adjusting for ongoing psychiatric symptoms such as cognitive impairment. The treatment could be integrated into treatment as usual at multiple levels with multidisciplinary team members sharing treatment delivery.

An important next step in planning a treatment would be to understand the needs of patients and their families and to understand the perspective of potential providers at community level before formulating a brief treatment that takes the suggestions of stakeholders, potential participants and their families into account. The acceptability and feasibility of this adapted brief treatment would then need to be assessed.

Appendices

Appendix A



UNIVERSITY OF CAPE TOWN

Department of Psychiatry and Mental Health

J Block Groote Schuur Hospital
Observatory
Cape Town
Tel: 021-4042137
Fax: 021-4042153

INFORMED CONSENT FOR HEALTHCARE PROVIDERS

The views of healthcare providers on a brief treatment to address methamphetamine use among patients with a dual diagnosis

Introduction:

We are asking you to take part in a research study which is being run by the University of Cape Town. We wish to explore the views of healthcare providers on a possible brief treatment to address methamphetamine use among patients with a dual diagnosis admitted to Valkenberg Hospital. You qualify for this study because you have experience in the management of patients with a dual diagnosis. We hope to find 10 treatment providers to participate in this study. If you decide to take part in the study, you will be asked questions about methamphetamine/tik use and mental health and the need for treatment for methamphetamine use.

What we're asking of you:

You will be asked to attend a 45-60minute recorded interview regarding your opinions of methamphetamine treatment options. This information will assist with a possible intervention for patients with a dual diagnosis.

Risks or Discomforts:

If you participate in this study and share your opinions with us, you may be identified from research reports. To protect confidentiality in research reports, your answers will always be grouped with other people's answers or disguised to protect you from being recognized.

Benefits of Taking Part in the Study: If you take part in this study you will help us to understand the best way to help patients with a mental illness who use methamphetamine the Western Cape reduce their use.

Being In The Study Is Voluntary And Confidential: Taking part in this study is completely up to you. All your information will be used for research purposes only. We will keep your information private. If you don't want to participate in the study, that is okay. If you don't want to answer a certain question or don't want to be in a certain part of the study that is also okay.

Privacy: Anyone who is working with any of the information you give us has to sign an agreement not to share what you tell us. Your answers will be given a special number instead of your name. No one else will know these are your answers. In research reports, your answers will always be grouped with other people's answers or disguised to protect you from being recognized. All confidential data will be stored in double-locked file cabinets.

Who to Contact with Questions: If you have any questions about your rights as a participant, concerns or complaints, contact Prof. Katherine Sorsdahl, katherine.sorsdahl@uct.ac.za or Dr Lisa Dannatt, lisa.dannatt@uct.ac.za 0214042151/ 0214045478. Additionally, you can contact the Human Ethics Research Committee on 021 406 6338.

Indicating Consent: Because we have given you a lot of information, please tell me in your own words what you understand us to be asking of you. In the box below, please put your initials if you agree to each of the following activities. You do not give up any rights by initialing any of the lines.

	Initials	What We're Asking of You
1		I agree to take part in the study, which has been fully described to me. I will answer questions today and to the best of my ability attend all the sessions.
2		Agree to provide contact information so researcher can keep in touch and remind me of future sessions

Declaration by participant

By signing below, I agree to take part in substance use intervention

I declare that:

- I have read or had read to me this information and consent form and it is written in a language with which I am fluent and comfortable.
- I have had a chance to ask questions and all my questions have been adequately answered.
- I understand that taking part in this study is **voluntary** and I have not been pressured to take part. I also understand that I do not give up any rights by signing below.
- I may choose to leave the study at any time and will not be penalized or prejudiced in any way.
- I may be asked to leave the study before it has finished, if the researcher feels it is in my best interests, or if I do not follow the study plan, as agreed to.
- I have received an unsigned copy of this form to keep.

Signed at (*place*) on (*date*)

Day/Month/Year

.....

Signature of participant

.....

Signature of witness

Appendix B

Interview Schedule for Stakeholders

Name: _____

Date: _____

1. What is your role in treating patients with dual diagnosis?

2. How does methamphetamine use impact on admission rates?

3. How does methamphetamine use impact on patient treatment?

4. Do you think an intervention for methamphetamine in dual diagnosis is warranted?

5. Should an intervention for dual diagnosis be offered at your Hospital?

6. If so, what would an intervention look like?

- ☐ How many sessions?
- ☐ Who should deliver it?
- ☐ Individual vs. group?
- ☐ Inpatient vs. outpatient

7. What challenges might one face if an intervention is offered to this vulnerable population (probe... ask what can be done to mitigate these challenges).

REFERENCES

- Akindipe, T., Wilson, D., & Stein, D. J. (2014). Psychiatric disorders in individuals with methamphetamine dependence: prevalence and risk factors. *Metabolic brain disease*, 29(2), 351-357.
- Alem, A., Jacobsson, L., & Hanlon, C. (2008). Community-based mental health care in Africa: mental health workers' views. *World psychiatry*, 7(1), 54.
- Asante, K. O., & Lento, A. G. (2017). Use of crystal methamphetamine among male adolescents in Cape Town, South Africa: Caregivers' experiences. *Substance abuse treatment, prevention, and policy*, 12(1), 18.
- Association, A. P. (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®)*: American Psychiatric Pub.
- Babor, T. F., Del Boca, F., & Bray, J. W. (2017). Screening, brief intervention and referral to treatment: implications of SAMHSA's SBIRT initiative for substance abuse policy and practice. *Addiction*, 112, 110-117.
- Baker, A., Bucci, S., Lewin, T. J., Kay-Lambkin, F., Constable, P. M., & Carr, V. J. (2006). Cognitive-behavioural therapy for substance use disorders in people with psychotic disorders Randomised controlled trial. *The British Journal of Psychiatry*, 188(5), 439-448.
- Baker, A., Kay-Lambkin, F., Lee, N. K., Claire, M., & Jenner, L. (2003). A brief cognitive behavioural intervention for regular amphetamine users. *Canberra: Australian Government Department of Health and Ageing*.
- Baronet, A.-M. (1999). Factors associated with caregiver burden in mental illness: a critical review of the research literature. *Clinical psychology review*, 19(7), 819-841.
- Barr, A. M., Panenka, W. J., MacEwan, G. W., Thornton, A. E., Lang, D. J., Honer, W. G., & Lecomte, T. (2006a). The need for speed: an update on methamphetamine addiction. *Journal of Psychiatry and Neuroscience*, 31(5), 301.
- Barr, A. M., Panenka, W. J., MacEwan, G. W., Thornton, A. E., Lang, D. J., Honer, W. G., & Lecomte, T. (2006b). The need for speed: an update on methamphetamine addiction. *Journal of psychiatry & neuroscience*.
- Blanchard, J. J., & Cohen, A. S. (2006). The structure of negative symptoms within schizophrenia: implications for assessment. *Schizophr Bull*, 32(2), 238-245. doi:10.1093/schbul/sbj013
- Bogenschutz, M. P., Geppert, C. M., & George, J. (2006). The role of twelve-step approaches in dual diagnosis treatment and recovery. *American Journal on Addictions*, 15(1), 50-60.
- Botha, U. A., Coetzee, M., Koen, L., & Niehaus, D. J. (2018). An Attempt to Stem the Tide: Exploring the Effect of a 90-Day Transitional Care Intervention on Readmissions to an Acute Male Psychiatric Unit in South Africa. *Archives of psychiatric nursing*, 32(3), 384-389.
- Botha, U. A., Koen, L., Joska, J. A., Parker, J. S., Horn, N., Hering, L. M., & Oosthuizen, P. P. (2010). The revolving door phenomenon in psychiatry: comparing low-frequency and high-frequency users of psychiatric inpatient services in a developing country. *Social Psychiatry and Psychiatric Epidemiology*, 45(4), 461-468.
- Browne, F. A., & Wechsberg, W. M. (2010). The intersecting risks of substance use and HIV risk among substance-using South African males and females. *Current Opinion in Psychiatry*, 23(3), 205.
- Burns, J. K. (2011). The mental health gap in South Africa: A human rights issue. *The Equal Rights Review*, 6(99), 99-113.
- Campbell-Hall, V., Petersen, I., Bhana, A., Mjadu, S., Hosegood, V., Flisher, A. J., & Consortium, M. R. P. (2010). Collaboration between traditional practitioners and primary health care staff in South Africa: developing a workable partnership for community mental health services. *Transcultural psychiatry*, 47(4), 610-628.

- Carra, G., Johnson, S., Bebbington, P., Angermeyer, M. C., Heider, D., Brugha, T., . . . Toumi, M. (2012). The lifetime and past-year prevalence of dual diagnosis in people with schizophrenia across Europe: findings from the European Schizophrenia Cohort (EuroSC). *European archives of psychiatry and clinical neuroscience*, 262(7), 607-616.
- Carroll, K. M., Ball, S. A., Nich, C., Martino, S., Frankforter, T. L., Farentinos, C., . . . Obert, J. L. (2006). Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study. *Drug and alcohol dependence*, 81(3), 301-312.
- Chilton, J., Crone, D., & Tyson, P. (2018). Clinical Outcomes From a 10-Week Follow-Up Psychoeducational Program for Dual Diagnosis. *Journal of dual diagnosis*, 14(2), 102-110.
- Collins, P. Y., Patel, V., Joestl, S. S., March, D., Insel, T. R., Daar, A. S., . . . Fairburn, C. (2011). Grand challenges in global mental health. *Nature*, 475(7354), 27.
- Corrigan, P. W., Druss, B. G., & Perlick, D. A. (2014). The impact of mental illness stigma on seeking and participating in mental health care. *Psychological Science in the Public Interest*, 15(2), 37-70.
- Courtney, K. E., & Ray, L. A. (2014). Methamphetamine: an update on epidemiology, pharmacology, clinical phenomenology, and treatment literature. *Drug and alcohol dependence*, 143, 11-21.
- Craig, P., Dieppe, P., Macintyre, S., Michie, S., Nazareth, I., & Petticrew, M. (2008). Developing and evaluating complex interventions: the new Medical Research Council guidance. *Bmj*, 337, a1655.
- Docrat, S., Besada, D., Cleary, S., Daviaud, E., & Lund, C. (2019). Mental health system costs, resources and constraints in South Africa: a national survey. *Health policy and planning*, 34(9), 706-719.
- Donovan, D. M., Ingalsbe, M. H., Benbow, J., & Daley, D. C. (2013). 12-step interventions and mutual support programs for substance use disorders: An overview. *Social work in public health*, 28(3-4), 313-332.
- Donovan, D. M., & Wells, E. A. (2007). 'Tweaking 12-Step': the potential role of 12-Step self-help group involvement in methamphetamine recovery. *Addiction*, 102(s1), 121-129.
- Draine, J., Salzer, M. S., Culhane, D. P., & Hadley, T. R. (2002). Role of social disadvantage in crime, joblessness, and homelessness among persons with serious mental illness. *Psychiatric Services*, 53(5), 565-573.
- Drake, R. E., Essock, S. M., Shaner, A., Carey, K. B., Minkoff, K., Kola, L., . . . Rickards, L. (2001). Implementing dual diagnosis services for clients with severe mental illness. *Psychiatric Services*.
- Drake, R. E., & Mueser, K. T. (2000). Psychosocial approaches to dual diagnosis. *Schizophrenia bulletin*, 26(1), 105-118.
- Drake, R. E., O'Neal, E. L., & Wallach, M. A. (2008). A systematic review of psychosocial research on psychosocial interventions for people with co-occurring severe mental and substance use disorders. *Journal of substance abuse treatment*, 34(1), 123-138.
- Dua, T., Barbui, C., Clark, N., Fleischmann, A., Poznyak, V., van Ommeren, M., . . . Drummond, C. (2011). Evidence-based guidelines for mental, neurological, and substance use disorders in low-and middle-income countries: summary of WHO recommendations. *PLoS medicine*, 8(11).
- Dunn, E. C., Wewiorski, N. J., & Rogers, E. S. (2008). The meaning and importance of employment to people in recovery from serious mental illness: results of a qualitative study. *Psychiatric rehabilitation journal*, 32(1), 59.
- Fasihpour, B., Molavi, S., & Shariat, S. V. (2013). Clinical features of inpatients with methamphetamine-induced psychosis. *J Ment Health*, 22(4), 341-349. doi:10.3109/09638237.2012.745184
- Fazel, S., Khosla, V., Doll, H., & Geddes, J. (2008). The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis. *PLoS medicine*, 5(12), e225.
- Ferrari, A. J., Stockings, E., Khoo, J. P., Erskine, H. E., Degenhardt, L., Vos, T., & Whiteford, H. A. (2016). The prevalence and burden of bipolar disorder: findings from the Global Burden of Disease Study 2013. *Bipolar disorders*, 18(5), 440-450.

- Freudenberg, N., & Ruglis, J. (2007). Peer reviewed: Reframing school dropout as a public health issue. *Preventing chronic disease*, 4(4).
- Gaebel, W., Zäske, H., & Baumann, A. (2006). The relationship between mental illness severity and stigma. *Acta Psychiatrica Scandinavica*, 113, 41-45.
- Glasner-Edwards, S., & Mooney, L. J. (2014). Methamphetamine psychosis: epidemiology and management. *CNS drugs*, 28(12), 1115-1126.
- Goldberg, R. W., Lucksted, A., McNary, S., Gold, J. M., Dixon, L., & Lehman, A. (2001). Correlates of long-term unemployment among inner-city adults with serious and persistent mental illness. *Psychiatric Services*, 52(1), 101-103.
- Gouse, H., Magidson, J. F., Burnhams, W., Remmert, J. E., Myers, B., Joska, J. A., & Carrico, A. W. (2016). Implementation of cognitive-behavioral substance abuse treatment in Sub-Saharan Africa: treatment engagement and abstinence at treatment exit. *PloS one*, 11(1), e0147900.
- Gouzoulis-Mayfrank, E., Härtel-Petri, R., Hamdorf, W., Havemann-Reinecke, U., Mühlig, S., & Wodarz, N. (2017). Methamphetamine-related disorders. *Deutsches Ärzteblatt International*, 114(26), 455.
- Grande, I., Berk, M., Birmaher, B., & Vieta, E. (2016). Bipolar disorder. *The Lancet*, 387(10027), 1561-1572.
- Hanlon, C., Alem, A., Medhin, G., Shibre, T., Ejigu, D. A., Negussie, H., . . . Susser, E. (2016). Task sharing for the care of severe mental disorders in a low-income country (TaSCS): study protocol for a randomised, controlled, non-inferiority trial. *Trials*, 17(1), 76.
- Hasin, D. S., O'Brien, C. P., Auriacombe, M., Borges, G., Bucholz, K., Budney, A., . . . Petry, N. M. (2013). DSM-5 criteria for substance use disorders: recommendations and rationale. *American Journal of Psychiatry*, 170(8), 834-851.
- Herman, A. A., Stein, D. J., Seedat, S., Heeringa, S. G., Moomal, H., & Williams, D. R. (2009). The South African Stress and Health (SASH) study: 12-month and lifetime prevalence of common mental disorders. *SAMJ: South African Medical Journal*, 99(5), 339-344.
- Hettema, J., Steele, J., & Miller, W. R. (2005). Motivational interviewing. *Annu. Rev. Clin. Psychol.*, 1, 91-111.
- Hobkirk, A. L., Watt, M. H., Myers, B., Skinner, D., & Meade, C. S. (2016). A qualitative study of methamphetamine initiation in Cape Town, South Africa. *International Journal of Drug Policy*, 30, 99-106.
- Hoeft, T. J., Fortney, J. C., Patel, V., & Unützer, J. (2018). Task-sharing approaches to improve mental health care in rural and other low-resource settings: a systematic review. *The Journal of rural health*, 34(1), 48-62.
- Hwang, S. W. (2001). Homelessness and health. *Canadian medical association Journal*, 164(2), 229-233.
- Insel, T. R. (2008). Assessing the economic costs of serious mental illness. In: Am Psychiatric Assoc.
- Jack, H., Wagner, R. G., Petersen, I., Thom, R., Newton, C. R., Stein, A., . . . Hofman, K. J. (2014). Closing the mental health treatment gap in South Africa: a review of costs and cost-effectiveness. *Global health action*, 7(1), 23431.
- Johnson, S. (1997). Dual diagnosis of severe mental illness and substance misuse: a case for specialist services? *The British Journal of Psychiatry*, 171(3), 205-208.
- Kessler, R. C., Angermeyer, M., Anthony, J. C., De Graaf, R., Demyttenaere, K., Gasquet, I., . . . Haro, J. M. (2007). Lifetime prevalence and age-of-onset distributions of mental disorders in the World Health Organization's World Mental Health Survey Initiative. *World psychiatry*, 6(3), 168.
- Kobayashi, O., Matsumoto, T., Otsuki, M., Endo, K., Okudaira, K., Harai, H., & Wada, K. (2007). A preliminary study on outpatient relapse prevention program for methamphetamine dependent patients: Serigaya Methamphetamine Relapse Prevention Program (SMARPP). *Nihon Arukoru Yakubutsu Igakkai zasshi= Japanese journal of alcohol studies & drug dependence*, 42(5), 507-521.
- Kofoed, L., & Keys, A. (1988). Using group therapy to persuade dual-diagnosis patients to seek substance abuse treatment. *Psychiatric Services*, 39(11), 1209-1211.

- Lee, N. K., Lee, N. K., Rawson, R. A., Lee, N. K., & Rawson, R. A. (2008). A systematic review of cognitive and behavioural therapies for methamphetamine dependence. *Drug and alcohol review*, 27(3), 309-317.
- Liu, N. H., Daumit, G. L., Dua, T., Aquila, R., Charlson, F., Cuijpers, P., . . . Fujii, C. (2017). Excess mortality in persons with severe mental disorders: a multilevel intervention framework and priorities for clinical practice, policy and research agendas. *World psychiatry*, 16(1), 30-40.
- Magidson, J. F., Gouse, H., Burnhams, W., Wu, C. Y., Myers, B., Joska, J. A., & Carrico, A. W. (2017). Beyond methamphetamine: Documenting the implementation of the Matrix model of substance use treatment for opioid users in a South African setting. *Addictive behaviors*, 66, 132-137.
- Marlatt, G. A., & George, W. H. (1984). Relapse prevention: Introduction and overview of the model. *British journal of addiction*, 79(3), 261-273.
- Matsumoto, T., Imamura, F., Kobayashi, O., Wada, K., Ozaki, S., Takeuchi, Y., . . . Adachi, Y. (2014). Evaluation of a relapse-prevention program for methamphetamine-dependent inmates using a self-teaching workbook and group therapy. *Psychiatry and clinical neurosciences*, 68(1), 61-69.
- Maxwell, J. C. (2005). Emerging research on methamphetamine. *Current Opinion in Psychiatry*, 18(3), 235-242.
- McCance-Katz, E. F., & Satterfield, J. (2012). SBIRT: A key to integrate prevention and treatment of substance abuse in primary care. *The American journal on addictions/American Academy of Psychiatrists in Alcoholism and Addictions*, 21(2), 176.
- McGovern, M. P., Lambert-Harris, C., Gotham, H. J., Claus, R. E., & Xie, H. (2014). Dual diagnosis capability in mental health and addiction treatment services: an assessment of programs across multiple state systems. *Administration and Policy in Mental Health and Mental Health Services Research*, 41(2), 205-214.
- McHugh, R. K., Hearon, B. A., & Otto, M. W. (2010). Cognitive behavioral therapy for substance use disorders. *Psychiatric Clinics of North America*, 33(3), 511-525.
- Meade, C. S., Towe, S. L., Watt, M. H., Lion, R. R., Myers, B., Skinner, D., . . . Pieterse, D. (2015). Addiction and treatment experiences among active methamphetamine users recruited from a township community in Cape Town, South Africa: A mixed-methods study. *Drug and alcohol dependence*, 152, 79-86.
- Menezes, P. R., Johnson, S., Thornicroft, G., Marshall, J., Prosser, D., Bebbington, P., & Kuipers, E. (1996). Drug and alcohol problems among individuals with severe mental illnesses in South London. *The British Journal of Psychiatry*, 168(5), 612-619.
- Miles, H., Johnson, S., Amponsah-Afuwape, S., Finch, E., Leese, M., & Thornicroft, G. (2003). Characteristics of subgroups of individuals with psychotic illness and a comorbid substance use disorder. *Psychiatric Services*.
- Morris, R., Griffiths, O., Le Pelley, M. E., & Weickert, T. W. (2013). Attention to irrelevant cues is related to positive symptoms in schizophrenia. *Schizophr Bull*, 39(3), 575-582. doi:10.1093/schbul/sbr192
- Mueser, K. T., Drake, R. E., & Wallach, M. A. (1998). Dual diagnosis: a review of etiological theories. *Addictive behaviors*, 23(6), 717-734.
- Mulud, Z. A., & McCarthy, G. (2017). Caregiver burden among caregivers of individuals with severe mental illness: testing the moderation and mediation models of resilience. *Archives of psychiatric nursing*, 31(1), 24-30.
- Myers, B. (2013). Barriers to alcohol and other drug treatment use among Black African and Coloured South Africans. *BMC health services research*, 13(1), 177.
- Myers, B., Louw, J., & Fakier, N. (2008). Alcohol and drug abuse: removing structural barriers to treatment for historically disadvantaged communities in Cape Town. *International Journal of Social Welfare*, 17(2), 156-165.

- Myers, B., Louw, J., & Pasche, S. (2011). Gender differences in barriers to alcohol and other drug treatment in Cape Town, South Africa. *African journal of psychiatry*, 14(2).
- Myers, B., Petersen-Williams, P., van der Westhuizen, C., Lund, C., Lombard, C., Joska, J. A., . . . Milligan, P. (2019). Community health worker-delivered counselling for common mental disorders among chronic disease patients in South Africa: a feasibility study. *BMJ open*, 9(1), e024277.
- Myers, H. T. B. (2012). Clinical Treatment of substance use disorders in South Africa. In D. J. S. George F.R. Ellis, Kevin G.F. Thomas, Ernesta M. Meintjes (Ed.), *Substance use and abuse in South Africa* (pp. 329-366): UCT Press.
- Okafor, C. N., Stein, D. J., Dannatt, L., Ipser, J., van Nunen, L. J., Lake, M. T., . . . Shoptaw, S. (2019). Contingency management treatment for methamphetamine use disorder in South Africa. *Drug and alcohol review*.
- Pasche, S., & Myers, B. (2012). Substance misuse trends in South Africa. *Human Psychopharmacology: Clinical and Experimental*, 27(3), 338-341.
- Perry, J., & Craig, T. K. (2015). Homelessness and mental health. *Trends in Urology & Men's Health*, 6(2), 19-21.
- Petersen, I., & Lund, C. (2011). Mental health service delivery in South Africa from 2000 to 2010: one step forward, one step back. *South African Medical Journal*, 101(10), 751-757.
- Plüddemann, A., Dada, S., Parry, C., Kader, R., Parker, J., Temmingh, H., . . . Lewis, I. (2013). Monitoring the prevalence of methamphetamine-related presentations at psychiatric hospitals in Cape Town, South Africa. *African journal of psychiatry*, 16(1), 45-49.
- Plüddemann, A., Flisher, A. J., McKetin, R., Parry, C., & Lombard, C. (2010). Methamphetamine use, aggressive behavior and other mental health issues among high-school students in Cape Town, South Africa. *Drug and alcohol dependence*, 109(1-3), 14-19.
- Plüddemann, A., Flisher, A. J., McKetin, R., Parry, C. D., & Lombard, C. J. (2010). A prospective study of methamphetamine use as a predictor of high school non-attendance in Cape Town, South Africa. *Substance abuse treatment, prevention, and policy*, 5(1), 25.
- Plüddemann, A., Flisher, A. J., McKetin, R., Parry, C. D., & Lombard, C. J. (2012). Methamphetamine use and sexual risk behavior among high school students in Cape Town, South Africa. *Journal of Child & Adolescent Substance Abuse*, 21(2), 181-191.
- Plüddemann, A., Plüddemann, A., Myers, B. J., & Parry, C. D. (2008). Surge in treatment admissions related to methamphetamine use in Cape Town, South Africa: implications for public health. *Drug and alcohol review*, 27(2), 185-189.
- Potvin, S., Pelletier, J., Grot, S., Hebert, C., Barr, A. M., & Lecomte, T. (2018). Cognitive deficits in individuals with methamphetamine use disorder: a meta-analysis. *Addictive behaviors*, 80, 154-160.
- Rawson, R. A., Gonzales, R., & Brethen, P. (2002). Treatment of methamphetamine use disorders: an update. *Journal of substance abuse treatment*, 23(2), 145-150.
- Renner, J. A., Quinones, J., & Wilson, A. (2005). Training psychiatrists to diagnose and treat substance abuse disorders. *Current psychiatry reports*, 7(5), 352-359.
- Renner Jr, J. A. (2004). How to train residents to identify and treat dual diagnosis patients. *Biological psychiatry*, 56(10), 810-816.
- Richards, M., Doyle, M., & Cook, P. (2009). A literature review of family interventions for dual diagnosis: implications for forensic mental health services. *The British Journal of Forensic Practice*, 11(4), 39-49.
- Roll, J. M. (2007). Contingency management: an evidence-based component of methamphetamine use disorder treatments. *Addiction*, 102, 114-120.
- Roll, J. M., Petry, N. M., Stitzer, M. L., Brecht, M. L., Peirce, J. M., McCann, M. J., . . . Lucero, L. (2006). Contingency management for the treatment of methamphetamine use disorders. *American Journal of Psychiatry*.

- Ruggeri, M., Leese, M., Thornicroft, G., Bisoffi, G., & Tansella, M. (2000). Definition and prevalence of severe and persistent mental illness. *The British Journal of Psychiatry*, 177(2), 149-155.
- Saha, S., Chant, D., Welham, J., & McGrath, J. (2005). A systematic review of the prevalence of schizophrenia. *PLoS medicine*, 2(5), e141.
- Saraceno, B., van Ommeren, M., Batniji, R., Cohen, A., Gureje, O., Mahoney, J., . . . Underhill, C. (2007). Barriers to improvement of mental health services in low-income and middle-income countries. *The Lancet*, 370(9593), 1164-1174.
- Saunders, J. C. (2003). Families living with severe mental illness: A literature review. *Issues in mental health nursing*, 24(2), 175-198.
- Shearer, J. (2007). Psychosocial approaches to psychostimulant dependence: a systematic review. *J Subst Abuse Treat*, 32(1), 41-52. doi:10.1016/j.jsat.2006.06.012
- Shearer, J. (2007). Psychosocial approaches to psychostimulant dependence: a systematic review. *Journal of substance abuse treatment*, 32(1), 41-52.
- Sibeko, G., Milligan, P. D., Roelofse, M., Molefe, L., Jonker, D., Ipser, J., . . . Stein, D. J. (2018). Piloting a mental health training programme for community health workers in South Africa: an exploration of changes in knowledge, confidence and attitudes. *BMC psychiatry*, 18(1), 191.
- Simbayi, L. C., Kalichman, S. C., Cain, D., Cherry, C., Henda, N., & Cloete, A. (2006). Methamphetamine use and sexual risks for HIV infection in Cape Town, South Africa. *Journal of Substance Use*, 11(4), 291-300.
- Siphokazi Dada, J. E., Nadine Harker Burnhams,, Charles Parry, A. B., Furzana Timol, David Fourie, Diana, & Kitshoff, E. N. R. W. (2015). <SACENDU BRIEFJune2015.pdf>. Retrieved from
- Siphokazi Dada, N. H. B., Jodilee Erasmus, Warren Lucas, Charles Parry, Arvin Bhana, Sandra Pretorius, Roger Weimann, TB HIV Care, Anova Health Institute, OUT Wellbeing & the University of Pretoria. (2019). SACENDU Research Brief *South African Community Epidemiology on Drug Use*, 22 (1).
- Sofuoglu, M., DeVito, E. E., Waters, A. J., & Carroll, K. M. (2013). Cognitive enhancement as a treatment for drug addictions. *Neuropharmacology*, 64, 452-463.
- Sorsdahl, K., Stein, D., Corrigall, J., Cuijpers, P., Smits, N., Naledi, T., & Myers, B. (2015). The efficacy of a blended motivational interviewing and problem solving therapy intervention to reduce substance use among patients presenting for emergency services in South Africa: A randomized controlled trial. *Substance abuse treatment, prevention, and policy*, 10(1), 1.
- Sorsdahl, K., Stein, D. J., Corrigall, J., Cuijpers, P., Smits, N., Naledi, T., & Myers, B. (2015). The efficacy of a blended motivational interviewing and problem solving therapy intervention to reduce substance use among patients presenting for emergency services in South Africa: A randomized controlled trial. *Substance abuse treatment, prevention, and policy*, 10(1), 46.
- Sorsdahl, K., Stein, D. J., Weich, L., Fourie, D., & Myers, B. (2012). The effectiveness of a hospital-based intervention for patients with substance-use problems in the Western Cape. *SAMJ: South African Medical Journal*, 102(7), 634-635.
- Sorsdahl, K., Williams, P. P., Everett-Murphy, K., Vythilingum, B., de Villiers, P., Myers, B., & Stein, D. J. (2015). Feasibility and preliminary responses to a screening and brief intervention program for maternal mental disorders within the context of primary care. *Community mental health journal*, 51(8), 962-969.
- Spedding, M. F., Stein, D. J., & Sorsdahl, K. (2014). Task-shifting psychosocial interventions in public mental health: A review of the evidence in the South African context. *South African Health Review*, 2014(1), 73-87.
- Subodh, B., Sharma, N., & Shah, R. (2018). Psychosocial interventions in patients with dual diagnosis. *Indian journal of psychiatry*, 60(Suppl 4), S494.
- Tanibuchi, Y., Matsumoto, T., Imamura, F., Wakabayashi, A., Kawachi, H., Hikitsuchi, E., . . . Yamada, M. (2016). Efficacy of the Serigaya Methamphetamine Relapse Prevention Program (SMARPP): for

- patients with drug use disorder: A study on factors influencing 1-year follow-up outcomes. *Nihon Arukoru Yakubutsu Igakkai zasshi= Japanese journal of alcohol studies & drug dependence*, 51(1), 38-54.
- Temmingh, H., Stein, D. J., Seedat, S., & Williams, D. R. (2011). The prevalence and correlates of hallucinations in a general population sample: findings from the South African Stress and Health Study. *African journal of psychiatry*, 14(3), 211-217.
- Thornicroft, G., Ahuja, S., Barber, S., Chisholm, D., Collins, P. Y., Docrat, S., . . . Ngo, V. (2018). Integrated care for people with long-term mental and physical health conditions in low-income and middle-income countries. *The Lancet Psychiatry*.
- Tomlinson, M., Breuer, E., Onah, M., Skeen, S., Baron, E., Lund, C., . . . Van der Westhuizen, C. (2016). Integrating mental health into South Africa's health system: current status and way forward. *South African Health Review*, 2016(1), 153-163.
- Uhlmann, A., Ipser, J. C., Wilson, D., & Stein, D. J. (2018). Social cognition and aggression in methamphetamine dependence with and without a history of psychosis. *Metabolic brain disease*, 33(2), 559-568.
- UNODC. (2019). World Drug Report 2019 (United Nations publication, Sales No. E.19.XI.8).
- Vigod, S. N., Kurdyak, P. A., Dennis, C.-L., Leszcz, T., Taylor, V. H., Blumberger, D. M., & Seitz, D. P. (2013). Transitional interventions to reduce early psychiatric readmissions in adults: systematic review. *The British Journal of Psychiatry*, 202(3), 187-194.
- Watt, M. H., Meade, C. S., Kimani, S., MacFarlane, J. C., Choi, K. W., Skinner, D., . . . Sikkema, K. J. (2014). The impact of methamphetamine ("tik") on a peri-urban community in Cape Town, South Africa. *International Journal of Drug Policy*, 25(2), 219-225.
- Weich, L., & Pienaar, W. (2009). Occurrence of comorbid substance use disorders among acute psychiatric inpatients at Stikland Hospital in the Western Cape, South Africa. *African journal of psychiatry*, 12(3).
- Zuma, K., Shisana, O., Rehle, T. M., Simbayi, L. C., Jooste, S., Zungu, N., . . . Moyo, S. (2016). New insights into HIV epidemic in South Africa: key findings from the National HIV Prevalence, Incidence and Behaviour Survey, 2012. *African Journal of AIDS Research*, 15(1), 67-75.
- Zweben, J. E., Cohen, J. B., Christian, D., Galloway, G. P., Salinardi, M., Parent, D., & Iguchi, M. (2004). Psychiatric symptoms in methamphetamine users. *American Journal on Addictions*, 13(2), 181-190.